

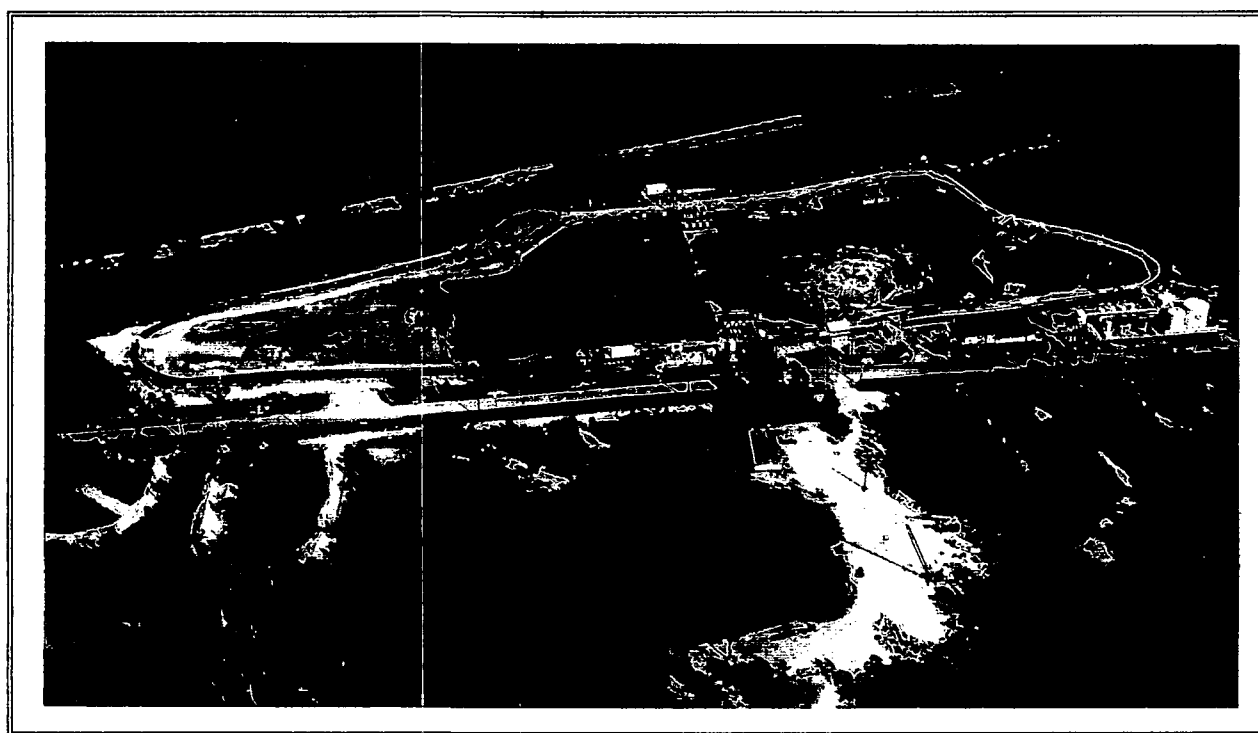
## French Ltd. Project



FLTG, Inc.

Crosby, Texas

## MONTHLY PROGRESS REPORT



Submitted to:

U.S. Environmental Protection Agency - Region 6  
and  
Texas Natural Resource Conservation Commission

December, 1995



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Appendix A - None  
Appendix B - None  
Appendix C - Analytical Results -

**Samples Dated December, 1995**

<u>Project I.D.</u>	<u>Date Received</u>	<u>Project I.D.</u>	<u>Date Received</u>
M04L0002	11/20/95	M03A0365	12/12/95
M03A0362	11/22/95	M04B0083	12/12/95
M03A0363	11/28/95	M04B0084	12/13/95
M03A0364	12/05/95	M04E0012	12/13/95
M01D0063	12/06/95	M04B0085	12/14/95
M04A0040	12/06/95	M04F0010	12/14/95
M06C0034	12/06/95	M04B0086	12/16/95
M04A0041	12/07/95	M04E0013	12/16/95
M04D0019	12/07/95	M04F0011	12/16/95
M04A0042	12/09/95	M04G0003	12/16/95
M04B0081	12/09/95	M04B0087	12/19/95
M04D0020	12/09/95	M04F0012	12/19/95
M04E0011	12/09/95	M04B0088	12/20/95
M04B0082	12/11/95	M04F0013	12/20/95

## 1.0 INTRODUCTION

This report covers the activities of FLTG, Inc. and the French Limited Project for December, 1995. FLTG, Inc. manages the project for the French Limited Task Group of Potentially Responsible Parties.

During December, 1995, the project team focused on the following activities and issues:

- Health, Safety, and Quality.
- Safety awareness.
- Safety on dismantling/salvage jobs.
- HAZOP of daily work assignments.
- Detecting and correcting work place hazards.
- Operation and maintenance of the aquifer in-situ bioremediation system.
- Natural attenuation modeling.
- Water treatment plant operation and maintenance.
- Site closure report.
- Operation of the data base management system.
- Shut-down of active aquifer remediation.
- Dismantling and salvage of shut-down systems.
- Wetlands project maintenance.



- This report includes:
  - A summary of December activities, issues, and progress.
  - Lagoon area activities.
  - Groundwater and Subsoil Remediation activities, issues, and progress.
  - Groundwater Treatment Plant activities and issues.
  - Ambient Air Management.
  - QA/QC status and data.
  - Site management activities and issues.
  - Wetlands maintenance.

## 2.0 SUMMARY

### 2.1 Summary of Activities and Progress

#### 2.1.1 Health and Safety

Emphasized the safety issues associated with multiple job assignments, limited support personnel, and dismantling systems; emphasized the need to be flexible and responsive to personal limitations and to changing job conditions; reviewed potential distractions and the impact on safety awareness.

No personal injury or equipment damage incidents.

All site workers earned the December safety bonus.

Conducted safety meetings and job inspections at the start of each shift; reviewed safety issues before starting all jobs.

All employees and contractors attended daily safety meetings.

Conducted daily mini-HAZOP of all specific jobs.

Reviewed the specific hazards and issues associated with dismantling work.

Supervision made 146 specific on-the-job safety contacts.

Emphasized the need to respond to changing weather.

Inspected and certified all fire extinguishers.

Emphasized the hazards and precautions associated with working around moving equipment.

Conducted 22 specific health and safety inspections.

Logged all safety issues each shift; less than 24-hour response to all safety issues.

The daily raffle ticket safety awareness program has been effective in maintaining daily safety awareness among all site personnel and contractors.

#### **2.1.2 Quality/QAQC/Data Base Management**

The total quality process was used. The status of the goals is shown on Table 2-2.

All quality goals were met.

Raw data is being validated as per the plan.

The data base management system operated with no problems or delays.

There were no data or reports rejected due to errors.

Ambient air samples were analyzed by Keystone with good results.

#### **2.1.3 Lagoon**

Dewatered Cell D by treating the water through the carbon absorption units.

Planted cottonwood trees on the perimeter road area inside the lagoon to dewater the subsurface.

Tested floodwall gate closure.

#### **2.1.4 Ambient Air Management**

Ambient air quality was manually checked daily with portable TVOC analyzers, and no response action was required.

Air quality was continuously monitored in all potential exposure areas and on all special jobs.

Time-integrated samples were collected in three work areas; the samples were sent to Keystone until the ambient air issues at AATS are resolved.

#### **2.1.5 Aquifer Remediation**

Monitored status of DNAPL plumes.

Continued routine S1 oxygen injection in target areas until December 15, 1995.

Continued INT oxygen and nutrient injection in target areas until December 15, 1995.

Shut down active aquifer remediation system on December 15, 1995.

Issued weekly well status and performance reports.

Inspected and adjusted all wells each day.

Continued daily maintenance of recovery and injection wells.

Completed monthly well measurements and sampling; TOC levels continue to decrease; DO and nitrate levels continue to increase.

Maintained O<sub>2</sub> content of injection water at about 40-45 ppm.

Monthly sampling indicated no rebound and indicated favorable gradient control; monthly sampling indicated that several well conversions and the installation of one new injection well were effective in accelerating remediation in target areas. Modeling of monthly sampling results also indicated that compliance criteria will be met by natural flushing 10 years after active aquifer remediation is shut down on December 15, 1995.

Implemented well system shut-down plan.

Continued dosing injection wells with Na<sub>2</sub>HPO<sub>4</sub> to accelerate the start of natural attenuation.

#### **2.1.6 Groundwater Treatment**

None of the treated aquifer water required carbon treatment to maintain effluent criteria.

There was no downtime.

The water treatment plant was shut down on December 15, 1995; all tanks, lines, and pumps were drained and flushed.

The water treatment plant effluent data is shown in Table 2-3. All effluent samples met criteria.

TOC input to T-101 continued to decrease.

The process operators collected all the process water and ground water samples.

Treated Cell D water at the rate of about 40 gpm.

Treated Cell D water through the carbon absorption columns after the water treatment plant was shut down on December 15, 1995.

#### **2.1.7 Wetlands Restoration**

Inspected site twice per week to evaluate vegetation growth and maintenance requirements.

Took aerial photos of the site to measure vegetation growth.

Repaired and secured the main access gate.

#### **2.1.8 Site Management and Issues**

Used the on-site laboratory to process all the operational control samples.

Reviewed site progress and issues in detail with EPA and TNRCC on a regular basis.

Validated all analytical data as per the QAQC plan.

Reviewed project status and issues each day to ensure focus on critical issues - safety, quality, cost, target area progress, and site closure planning.

Reviewed progress on issues and action plans each week.

Continued agency oversight cost discussions with EPA.

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Submitted revised long-term monitoring well list for agency review and approval.

Submitted the site closure plan.

Continued dismantling and salvage of shut-down equipment.

TABLE 2-1

**Ambient Air Management  
Time Integrated Exposure Data**

Compound	PEL 8 hour PPM	1 5-Dec-95 WTP Op. (E.O.)		2 5-Dec-95 Well Op. (F.L.)		3 5-Dec-95 TOC Bldg.	
		% of PEL	PPM	% of PEL	PPM	% of PEL	PPM
Chloromethane	50	0.000	0.000	0.000	0.000	0.000	0.000
Bromomethane	5	0.000	0.000	0.000	0.000	0.000	0.000
Vinyl chloride	1	0.000	0.000	0.000	0.000	0.000	0.000
Chloroethane	1000	0.000	0.000	0.000	0.000	0.000	0.000
Dichloromethane	50	0.000	0.000	0.000	0.000	0.000	0.000
Acetone	750	0.000	0.000	0.002	0.013	0.001	0.006
Carbon disulfide	10	0.000	0.000	0.000	0.000	0.000	0.000
1,1-Dichloroethene	5	0.000	0.000	0.000	0.000	0.000	0.000
1,1-Dichloroethane	100	0.000	0.000	0.000	0.000	0.000	0.000
trans-1,2-Dichloroethane	200	0.000	0.000	0.000	0.000	0.000	0.000
Chloroform	10	0.020	0.002	0.000	0.000	0.012	0.001
1,2-Dichloroethane	10	0.000	0.000	0.000	0.000	0.000	0.000
2-Butanone	200	0.000	0.000	0.003	0.006	0.001	0.001
1,1,1-Trichloroethane	350	0.000	0.000	0.000	0.000	0.000	0.000
Carbon Tetrachloride	5	0.000	0.000	0.000	0.000	0.000	0.000
Vinyl acetate	10	0.000	0.000	0.000	0.000	0.000	0.000
Bromodichloromethane			0.000		0.000		0.000
1,2-Dichloropropane	75	0.000	0.000	0.000	0.000	0.000	0.000
cis-1,3-Dichloropropen	1	0.000	0.000	0.000	0.000	0.000	0.000
Trichloroethene	50	0.000	0.000	0.000	0.000	0.000	0.000
Dibromochloromethane			0.000		0.000		0.000
1,1,2-Trichloroethane	10	0.000	0.000	0.000	0.000	0.000	0.000
Benzene	1	0.000	0.000	0.000	0.000	0.000	0.000
trans-1,3-Dichloroprop	1	0.000	0.000	0.000	0.000	0.000	0.000
2-Chloroethylvinyl ether			0.000		0.000		0.000
Bromoform	0.5	0.000	0.000	0.000	0.000	0.000	0.000
4-Methyl-2-pentanone	50	0.000	0.000	0.000	0.000	0.000	0.000
2-Hexanone	5	0.000	0.000	0.000	0.000	0.000	0.000
Tetrachloroethene	50	0.000	0.000	0.000	0.000	0.000	0.000
1,1,2,2-Tetrachloroet	1	0.000	0.000	0.000	0.000	0.000	0.000
Toluene	100	0.000	0.000	0.003	0.003	0.001	0.001
Chlorobenzene	10	0.000	0.000	0.000	0.000	0.000	0.000
Ethylbenzene	100	0.000	0.000	0.000	0.000	0.000	0.000
Styrene	50	0.000	0.000	0.000	0.000	0.000	0.000
Xylene (total)	100	0.000	0.000	0.000	0.000	0.000	0.000
Hexane			0.000		0.000		0.000

TABLE 2-2

Project Quality

Status as of 12/31/95	Goals	
Yes	1) No OSHA recordable injuries.	
Attention	2) 100% compliance with all safety rules and procedures.	
Yes	3) No citations for violations of applicable, relevant and appropriate regulations.	
Yes	4) 100% attendance (including contractors) at daily safety meetings.	
Attention	5) Less than 24-hour response time on health and safety issues.	
Yes	6) 100% sign-in and security clearance.	
Yes	7) No invalidation of reported data due to QA/QC issues.	
	8) Spend less than:	
		<u>MH/Month</u>
Yes	• Direct hire	1,200
Yes	• FLTG management	600
Yes/Attention	• Technical support	100
Yes/Attention	• Maintenance support	80
Yes	9) Pump at least 90 gpm; inject at least 60 gpm.	
Yes	10) Remediate shallow alluvial zone aquifer in 60 months.	
Yes	11) Hold analytical cost to less than \$12,000 per month (1994 only).	
Yes	12) No unscheduled overtime (per day or per week).	
Yes	13) No agency contacts which require 3rd party resolution.	
Yes	14) Documented training of site personnel for all work assignments.	
Yes	15) Monthly audit of actual performance versus goals.	



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TABLE 2-3  
Treated Water Results Summary

Collected	Set No.	pH		TSS		TOC		O&G		Benzene		Chlor HC's		Total PCBs		Naphthalene	
		(6-9)		5 PPM		55 PPM		15 PPM		150 PPB		500 PPB		0.65 PPB		300 PPB	
		Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg
1-May-95	M03A0330	7.63		1.		12.1		2.5		2.5		177.		.16		5.	
4-May-95	M03A0331	7.91		4.		12.5		2.5		2.5		222.		.16		5.	
8-May-95	M03A0332	7.95		4.		11.3		2.5		2.5		228.		.16		5.	
11-May-95	M03A0334	7.97		4.		10.9		2.5		2.5		235.		.16		5.	
16-May-95	M03A0333	7.87		8.		13.7		2.5		2.5		209.		.16		5.	
18-May-95	M03A0335	7.73		6.		11.		2.5		6.		374.		.16		5.	
22-May-95	M03A0336	7.88		1.		31.		2.5		6.		274.		.16		5.	
29-May-95	M03A0337	7.76		1.		45.		2.5		6.		227.		.16		5.	
5-Jun-95	M03A0338	7.53	7.8	.5	3.3	12.1	17.7	2.5	2.5	2.5	3.7	189.	237	.16	.16	5.	5.
12-Jun-95	M03A0339	7.78	7.8	1.	3.3	45.8	21.5	2.5	2.5	2.5	3.7	188.	238	.16	.16	5.	5.
19-Jun-95	M03A0440	7.68	7.8	5.	3.4	7.	20.9	2.5	2.5	2.5	3.7	144.	230	.16	.16	5.	5.
26-Jun-95	M03A0441	7.71	7.8	1.	3.1	9.1	20.6	2.5	2.5	2.5	3.7	128.	219	.16	.16	5.	5.
2-Jul-95	M03A0442	7.47	7.7	.5	2.7	6.7	20.2	2.5	2.5	2.5	3.7	180.	213	.16	.16	5.	5.
10-Jul-95	M03A0343	7.76	7.7	5.	2.3	5.2	19.2	2.5	2.5	2.5	3.7	182.	210	.16	.16	5.	5.
17-Jul-95	M03A0344	7.75	7.7	3.	2.	7.6	18.8	2.5	2.5	2.5	3.3	181.	188	.16	.16	5.	5.
24-Jul-95	M03A0345	7.55	7.7	.5	1.9	8.2	16.3	2.5	2.5	5.	3.2	479.	211	.16	.16	5.	5.
31-Jul-95	M03A0346	7.64	7.7	.5	1.9	2.5	11.6	7.8	3.1	5.	3.1	380.	228	.16	.16	5.	5.
7-Aug-95	M03A0347	7.55	7.7	2.	2.1	6.4	10.9	2.5	3.1	5.	3.3	536.	266	.16	.16	5.	5.
14-Aug-95	M03A0348	7.6	7.6	2.	2.2	7.3	6.7	2.5	3.1	5.	3.6	289.	278	.16	.16	5.	5.
21-Aug-95	M03A0349	7.55	7.6	1.	1.7	7.6	6.7	2.5	3.1	5.	3.9	261.	291	.16	.16	5.	5.
28-Aug-95	M03A0350	7.67	7.6	1.	1.7	8.7	6.7	2.5	3.1	5.	4.2	223.	301	.16	.16	5.	5.
4-Sep-95	M03A0351	7.7	7.6	1.	1.8	9.	6.9	2.5	3.1	5.	4.4	317.	316	.16	.16	5.	5.
11-Sep-95	M03A0352	7.54	7.6	1.	1.3	10.4	7.5	2.5	3.1	2.5	4.4	137.	311	.16	.16	5.	5.
18-Sep-95	M03A0353	7.74	7.6	1.	1.1	11.	7.9	2.5	3.1	2.5	4.4	180.	311	.32	.18	5.	5.
25-Sep-95	M03A0354	7.57	7.6	3.	1.4	13.7	8.5	2.5	3.1	2.5	4.2	148.	275	.32	.20	5.	5.
2-Oct-95	M03A0355	8.09	7.7	5.	1.9	9.5	9.3	2.5	2.5	2.5	3.9	109.	244	.32	.21	5.	5.
9-Oct-95	M03A0356	8.26	7.7	3.	2.0	9.3	9.6	.5	2.3	2.5	3.6	170.	204	.32	.23	5.	5.
16-Oct-95	M03A0357	8.06	7.8	1.	1.9	7.6	9.6	2.5	2.3	5.	3.6	332.	209	.32	.25	5.	5.
23-Oct-95	M03A0358	8.23	7.9	1.	1.9	7.8	9.7	.5	2.1	2.5	3.3	79.	188	.32	.27	5.	5.
30-Oct-95	M03A0359	8.23	7.9	3.	2.1	12.6	10.1	.5	1.8	2.5	3.1	167.	182	.32	.28	5.	5.
6-Nov-95	M03A0360	8.06	8.0	1.	2.1	13.	10.5	2.5	1.8	2.5	2.8	143.	163	.32	.30	5.	5.
13-Nov-95	M03A0361	7.95	8.0	1.	2.1	10.9	10.6	2.5	1.8	2.5	2.8	187.	168	.32	.32	5.	5.
20-Nov-95	M03A0362	8.1	8.1	.5	2.1	9.5	10.4	.5	1.6	2.5	2.8	236.	175	.32	.32	5.	5.
27-Nov-95	M03A0363	8.16	8.1	4.	2.2	7.7	9.8	.5	1.4	2.5	2.8	114.	171	.32	.32	5.	5.
4-Dec-95	M03A0364	8.19	8.1	5.	2.2	42.6	13.4	2.5	1.4	2.5	2.8	85.	168	.32	.32	5.	5.
11-Dec-95	M03A0365	8.02	8.1	3.	2.2	43.4	17.2	2.5	1.6	2.5	2.8	158.	167	.32	.32	5.	5.

Chlorinated hydrocarbons value is the sum of detected concentrations of 21 volatile chlorinated hydrocarbons on target compound list.

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FLTG, Incorporated

TABLE 2-3 (Continued)  
Treated Water Results Summary

Collected	Set No.	As		Ba		Cd		Cr		Cu		Pb		Mn		Hg		Ni		Se		Ag		Zn	
		150 PPB		1000 PPB		50 PPB		500 PPB		15 PPB		66 PPB		300 PPB		1 PPB		148 PPB		20 PPB		5 PPB		162 PPB	
		Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg
1-May-95	M03A0330	16.8		106.		1.1		.7		.7		.5		6.8		.1		8.5		.8		.5		.2	
4-May-95	M03A0331	21.		149.		1.1		5.9		1.		.5		70.4		.1		7.6		.8		.5		16.2	
8-May-95	M03A0332	16.		126.		.1		1.		1.6		.5		6.		.1		5.		1.3		.2		4.	
11-May-95	M03A0334	17.		158.		.1		3.		.9		.5		22.		.1		6.		1.3		.2		5.	
15-May-95	M03A0333	17.		141.		.1		2.		1.		.5		21.		.1		5.		1.3		.2		4.	
18-May-95	M03A0335	18.		122.		.1		.2		.3		.5		4.		.1		3.		1.3		.2		1.5	
22-May-95	M03A0336	14.		130.		.1		1.		.5		.5		9.		.1		5.		1.3		.2		7.	
29-May-95	M03A0337	16.		176.		.1		2.		.3		.5		27.		.1		1.		2.8		.2		4.	
5-Jun-95	M03A0338	12.	16.4	191.	144	.1	.3	2.	2.	1.	.8	.5	.5	18.	20.5	.1	.1	4.	5.	1.3	1.3	.2	.2	5.	5.2
12-Jun-95	M03A0339	13.	16.	204.	155	.1	.2	1.	2.	1.	.8	.5	.5	2.5	20.	.1	.1	4.5	4.6	1.3	1.4	.2	.2	3.	5.5
19-Jun-95	M03A0340	14.	15.2	213.	162	.1	.1	1.	1.5	.8	.8	.5	.5	6.	12.8	.1	.1	5.	4.3	1.3	1.4	.2	.2	1.5	3.9
26-Jun-95	M03A0341	15.	15.1	155.	166	.1	.1	.7	1.4	.7	.7	4.	.9	2.	12.4	.1	.1	4.	4.2	1.3	1.4	.2	.2	6.	4.1
2-Jul-95	M03A0342	17.	15.1	122.	162	.1	.1	1.5	1.3	.5	.7	1.	.9	10.	11.1	.1	.1	5.	4.1	1.5	1.4	.2	.2	6.	4.2
10-Jul-95	M03A0343	13.	14.7	173.	165	.2	.1	.7	1.1	.9	.7	.5	.9	2.	8.9	.1	.1	5.	4.1	1.2	1.4	.2	.2	5.	4.3
17-Jul-95	M03A0344	13.	14.1	172.	171	.1	.1	.9	1.2	1.	.7	.5	.9	2.5	8.8	.1	.1	4.8	4.3	1.2	1.4	.2	.2	2.9	4.5
24-Jul-95	M03A0345	18.	14.6	175.	176	.1	.1	.7	1.2	.9	.8	.5	.9	1.3	7.9	.1	.1	6.6	4.4	1.2	1.4	.2	.2	5.5	4.3
31-Jul-95	M03A0346	12.	14.1	193.	178	.1	.1	.9	1.	.9	.8	2.8	1.2	5.2	5.5	.1	.1	4.6	4.8	1.1	1.2	.2	.2	3.7	4.3
7-Aug-95	M03A0347	17.	14.7	204.	179.	1.	.2	1.5	1.	.9	.8	.5	1.2	6.6	4.2	.1	.1	5.1	5.	1.2	1.2	.2	.2	7.8	4.6
14-Aug-95	M03A0348	15.	14.9	202.	179	.1	.2	.2	.9	.9	.8	.5	1.2	5.3	4.5	.1	.1	2.8	4.8	1.2	1.2	.2	.2	6.8	5.
21-Aug-95	M03A0349	13.	14.8	190.	176	.1	.2	.2	.8	.9	.8	.5	1.2	1.3	4.	.1	.1	4.	4.7	1.2	1.2	.2	.2	.5	4.9
28-Aug-95	M03A0350	12.	14.4	204.	182	.1	.2	.9	.8	.9	.8	.5	.8	4.4	4.3	.1	.1	3.7	4.6	1.2	1.2	.2	.2	3.3	4.6
4-Sep-95	M03A0351	12.	13.9	209.	191	.1	.2	1.3	.8	2.3	1.	.5	.8	6.4	3.9	.1	.1	5.1	4.6	1.2	1.1	.2	.2	12.	5.3
11-Sep-95	M03A0352	24.	15.1	162.	190	.1	.2	.2	.7	.9	1.	.5	.8	3.7	4.1	.1	.1	3.8	4.5	1.2	1.1	.2	.2	8.8	5.7
18-Sep-95	M03A0353	19.	15.8	165.	189	.1	.2	.6	.7	.9	1.	.5	.8	2.6	4.1	.1	.1	4.	4.4	1.2	1.1	.2	.2	2.9	5.7
25-Sep-95	M03A0354	25.	16.6	145.	186.	1.	.3	1.5	.8	1.7	1.1	.5	.8	5.5	4.6	.1	.1	5.1	4.2	1.2	1.1	.2	.2	11.3	6.3
2-Oct-95	M03A0355	20.	17.4	168.	183	.1	.3	2.1	.9	9.1	2.	.5	.5	7.5	4.8	.1	.1	10.2	4.9	1.2	1.2	.2	.2	4.8	6.5
9-Oct-95	M03A0356	16.	17.3	151.	177	.3	.2	1.2	.9	1.2	2.1	.5	.5	2.5	4.4	.1	.1	3.7	4.7	.9	1.1	.6	.2	1.2	5.7
16-Oct-95	M03A0357	16.	17.4	188.	176	.2	.2	.2	.9	.6	2.	.5	.5	3.	4.1	.1	.1	2.	4.6	2.	1.2	.5	.2	10.	6.1
23-Oct-95	M03A0358	15.	17.7	188.	176	.2	.2	.2	.9	1.2	2.1	.5	.5	5.	4.5	.1	.1	1.	4.3	1.	1.2	.3	.2	3.5	6.4
30-Oct-95	M03A0359	14.6	18.	187.	174	.2	.2	2.	1.	.6	2.	.5	.5	25.	6.8	.1	.1	4.	4.3	.8	1.2	.3	.3	2.5	6.3
6-Nov-95	M03A0360	13.	18.1	204.	173	.2	.2	2.	1.1	.6	1.9	.5	.5	34.	9.9	.1	.1	4.	4.2	.8	1.1	.3	.3	3.	5.3
13-Nov-95	M03A0361	17.	17.3	183.	175	.2	.3	.2	1.1	.6	1.8	.5	.5	6.	10.1	.1	.1	1.	3.9	3.	1.3	.3	.3	7.	5.1
20-Nov-95	M03A0362	13.	16.6	219.	181	.2	.3	.2	1.1	1.3	1.9	.5	.5	18.	11.8	.1	.1	4.	3.9	4.	1.6	.3	.3	5.	5.4
27-Nov-95	M03A0363	11.	15.1	224.	190	.1	.2	1.6	1.1	2.6	2.	.5	.5	24.	13.9	.1	.1	4.	3.8	3.6	1.9	.3	.3	8.6	5.1
4-Dec-95	M03A0364	9.	13.8	299.	205	.2	.2	.2	.9	.6	1.	.5	.5	41.	17.6	.1	.1	.1	2.6	4.	2.2	.3	.3	9.	5.5
11-Dec-95	M03A0365	12.	13.4	235.	214	.2	.1	.2	.8	2.	1.1	.5	.5	12.	18.7	.1	.1	1.	2.3	1.	2.2	.3	.3	4.	5.8

Metals values in PPB.

## 2.2 Problem Areas and Recommended Solutions

<u>Problem</u>	<u>Solution</u>
Maintain high level of safety awareness.	Daily raffle ticket program. Daily safety meetings. Safety meeting participation. Training. Regular HAZOP's. Regular on-the-job contacts. Constant hazard awareness.
On-the-Job safety attention.	Review job details as work proceeds. Stop and challenge approach. Constant emphasis and reminders. Frequent supervisory contact.
Hazard detection and response.	Safety inspections. HAZOP's on all jobs. Constant awareness and follow-up. Sensitive to changing conditions.
Wetlands Maintenance	Implement 5-year maintenance plan.
EPA oversight costs.	Negotiate lump sum payment.
Long-term site management.	Refine long-term site management plan.
Ambient air sample analysis.	Send split samples and blanks to two laboratories.

## 2.3 Problems Resolved

None.

## 2.4 Deliverables Submitted

November, 1995 monthly report  
Revised annual sampling plan  
Natural Attenuation Modeling report

**2.5 Upcoming/Ongoing Events and Activities**

Daily safety meetings and inspections.

Daily safety awareness program.

Emphasis on the safety aspect of multiple work assignments.

Emphasis on hazard identification and response.

Attention to safety details during dismantling and disposal.

Aquifer sampling in select areas and zones.

Operate Data Base Management System.

Total Quality process.

Treat Cell D water with carbon absorption unit.

Implement site closure plan.

Implement long-term site management plan.

Dismantle and salvage remediation systems.

**2.6 Key Staffing Changes**

None.

## 2.7 Percent Complete

Research & Development	- 99%
Facilities	-100%
Slough	-100%
Subsoil Investigation	-100%
Floodwall	-100%
Lagoon Remediation	-100%
Groundwater	- 96%
Lagoon Dewatering/Fixation	-100%
Water Treatment	- 96%
Wetlands	- 98%
Demobilization	- 72%
Monitoring	- 72%

## 2.8 Schedule

All deliverables are on schedule.

Complete site closure by August 1, 1996.

## 2.9 Operations and Monitoring Data

The operations and monitoring data are submitted as parts of Sections 3.0, 4.0, 5.0, and 6.0 of this report, and the supporting data are stored in secure storage at the French project office.

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2.10 Credits Accrued/Applied

Status of Credits

	Accrued this period	Accrued to date	Applied this period	Applied to date	Running total
December 1990	34	34	0	0	34
December 1991	0	100	0	0	100
December 1992	0	101	0	2	99
December 1993	0	104	0	4	100
January 1994	0	104	0	4	100
February 1994	0	104	0	4	100
March 1994	0	104	0	4	100
April 1994	0	104	0	4	100
May 1994	0	104	0	4	100
June 1994	0	104	0	4	100
July 1994	5	109	0	4	105
August 1994	0	109	0	4	105
September 1994	0	109	0	4	105
October 1994	0	109	0	4	105
November 1994	0	109	0	4	105
December 1994	0	109	0	4	105
January 1995	0	109	0	4	105
February 1995	0	109	0	4	105
March 1995	0	109	0	4	105
April 1995	0	109	0	4	105
May 1995	0	109	0	4	105
June 1995	0	109	0	4	105
July 1995	0	109	0	4	105
August 1995	2	111	0	4	107
September 1995	1	112	0	4	108
October 1995	0	112	0	4	108
November 1995	0	112	0	4	108
December 1995	0	112	0	4	108

**2.11 Community Relations**

Maintained 24-hour, call-in Hot Line.

Conducted two tours for interested parties.

Supported Barrett Chamber of Commerce development project.

Reviewed conceptual site closure plan with community leaders.

Reviewed site status with the local newspaper.

### 3.0 LAGOON

#### 3.1 Summary of Activities

Treated 426,000 gallons of Cell D water.

Evaluating various options for gradient control inside the lagoon.

Evaluating several surface water source options for the area inside the migration wall.

Issued request for bid for removal of the floodwall.

Continued dismantling and disposal of scrap piping.

Completed the plan for backfilling Cell D.

#### 3.2 Problems and Response Action

<u>Problem</u>	<u>Recommended Solution</u>
Ground cover growth slow in Cell E.	Water frequently. Evaluate different grass blends and soil nutrients.
Poor tree growth in Cell E.	Evaluate different types of trees. Relocate trees to perimeter road.

#### 3.3 Problems Resolved

None.

#### 3.4 Deliverables Submitted

None.



### 3.5 Upcoming Events and Activities

Treat Cell D water in water treatment plant.

Install temporary liner in Cell D to isolate "clean" rainwater from "affected" soils and water.

Backfill Cell D with clean soil.

Water Cell E and Cell F as required, using the east slough surface water.

Maintain vegetation in Cell E.

Maintain cottonwood trees along the perimeter road for gradient control.

Dismantle and dispose of surplus pipe in Cell D.

## **4.0 GROUNDWATER AND SUBSOIL REMEDIATION**

### **4.1 Summary of Activities**

#### **4.1.1 Operation of Production and Injection Well Systems**

Operation of the production and injection wells systems through December 15, 1995, is summarized in Table 4-1. Flows from the production well system are summarized in Table 4-2 and Figure 4-1. Flows into the injection well system are summarized in Table 4-3 and Figure 4-2. Individual well flows are summarized in Table 4-4.

#### **4.1.2 Operational Monitoring**

Operational monitoring associated with the groundwater and subsoil remediation system during December, 1995, is summarized in Table 4-5.

#### **4.1.3 Data Management and Evaluation**

Operational monitoring data from the groundwater and subsoil remediation system for this reporting period were entered into FLTG's database. Tables and figures for this section of the Monthly Progress Report were generated from this database.

Annual sampling was completed on December 18, 1995; results will be issued as they become available from data processing.

### **4.2 Problems and Response Actions**

Production and injection systems were shut down the morning of December 15, 1995. Sequence of the shut-down is included in Section 5 of the monthly report.

Seventeen cottonwood trees were planted inside the lagoon on December 15, 1996. These trees were placed in the original lagoon berm and road to aid in the long-term water balance program.

TABLE 4-1

Groundwater System Operation - December 1995 <i>Reporting Period: December 1-15 (15 days)</i>	
<b>Production System</b>	
See Well Status Report, Attachment 4A	
Groundwater produced: 2.1 M gal	
Total production rate: avg. 75.4 gpm (target 80 gpm)	
S1 production rate: avg. 36.2 gpm; avg. 3.0 gpm per metered well	
INT production rate: avg. 39.2 gpm; avg. 0.8 gpm per metered well	
Total flow rate apportioned between S1 and INT units based on individual well meter readings; average flows based on 15 days operation	
TOC (non-volatile) concentration avg. 38 ppm	
TOC mass removed: 670 lbs.; 44.6 lb./day	
<b>Injection System</b>	
See Well Status Report, Attachment 4A	
Rainfall during period: 6.05 inches	
Groundwater injected: 1.6 M gal	
S1 unit injected: 0.59 M gal	
INT unit injected: 1.1 M gal	
Total injection rate: avg. 79.7 gpm (target 80 gpm)	
S1 injection rate: avg. 27.1 gpm; avg. 3.4 gpm per well	
INT injection rate: avg. 52.6 gpm; avg. 1.5 gpm per well	
Total flow rate apportioned between S1 and INT units based on individual well meter readings; average flows based on 15 days operation	
Oxygen added to injection water: 4,250 lbs.; 283.3 lbs./day used (input efficiency = 17%)	
Avg. DO in injection water: S1, 51.9 ppm; INT, 54.8 ppm (target 40 ppm) $\Rightarrow$ 47.8 lb./day injected	
Volume of 9.1% w/w KNO <sub>3</sub> nutrient solution added to INT unit, and all S1 wells: after 10/5/95 - 7,557 gal	
Nutrient flow rate: 503.8 gpd, 0.46% of INT + S1 inflow rate (target 0.38%)	
Calculated injection water NO <sub>3</sub> concentration: 116.5 mg/L-N (target 50 mg/L-N)	
<b>Changes in the Aquifer System - shut down 12/15/95</b>	
<b>Aquifer and Subsoil Remediation Project Totals</b>	
Groundwater produced: 281,000,000 gals	
TOC mass removed: 376,825 lbs	
Groundwater injected: 180,400,000 gals	
S1-unit 98,800,000	
INT-unit 81,600,000	
Oxygen added to injection water: 247,215 lbs	
Nutrient added to injection water: 2,271,755 lbs	
NH <sub>3</sub> NO <sub>3</sub> 391,897 lbs	
KTPP 63,957 lbs	
KNO <sub>3</sub> 4.4% 36,967 lbs	
KNO <sub>3</sub> 9.1 % 1,778,934 lbs	

TABLE 4-2

Daily Groundwater Production and TOC Removal  
December 1995

Date	Project Day	T-101 Outflow Rate (FQ-101A)	T-101 Outflow Rate	T-101 Influent Ave. TOC	T-101 Influent TOC Loading
		(gpd)	(gpm)	(mg/L)	(kg/day)
1-Dec	1423	140,200	97	38	20
2-Dec	1424	157,800	110	38	23
3-Dec	1425	141,400	98	38	20
4-Dec	1426	134,800	94	38	19
5-Dec	1427	144,100	100	38	21
6-Dec	1428	134,600	93	38	19
7-Dec	1429	116,800	81	38	17
8-Dec	1430	122,200	85	38	18
9-Dec	1431	126,200	88	38	18
10-Dec	1432	114,700	80	38	17
11-Dec	1433	134,200	93	38	19
12-Dec	1434	134,900	94	38	19
13-Dec	1435	168,700	117	38	24
14-Dec	1436	211,400	147	38	30
15-Dec	1437	129,500	90	38	19
Month Average		140,767	98	38	20
Month Total		2,111,500		670 lb	304

T-101 influent TOC value is estimated because sampling point is downstream from Cell D dewatering inlet.

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Groundwater and Subsoil Remediation

French Ltd. Project  
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TABLE 4-3

Daily Injection Flows  
December 1995

Date	Project Day	INT South S1 North Injection Wells FQ905		INT North Injection Wells Meter FQ-906		S1 South Injection Wells Meter FQ-909		Total Injection Rate		Oxygen	Nutrients
		(gpd)	(gpm)	(gpd)	(gpm)	(gpd)	(gpm)	(gpd)	(gpm)	lbs	Gallons
1-Dec	1423	42,900	30	69,800	48	0	0	112,700	78	200	188
2-Dec	1424	43,000	30	70,700	49	0	0	113,700	79	200	199
3-Dec	1425	43,000	30	71,100	49	0	0	114,100	79	200	285
4-Dec	1426	41,900	29	70,000	49	0	0	111,900	78	200	356
5-Dec	1427	43,100	30	72,500	50	0	0	115,600	80	200	403
6-Dec	1428	41,900	29	70,300	49	0	0	112,200	78	200	422
7-Dec	1429	41,800	29	69,800	48	0	0	111,600	78	195	391
8-Dec	1430	41,500	29	69,100	48	0	0	110,600	77	200	398
9-Dec	1431	40,900	28	69,000	48	0	0	109,900	76	200	368
10-Dec	1432	40,800	28	69,400	48	0	0	110,200	77	160	446
11-Dec	1433	40,100	28	68,400	48	0	0	108,500	75	345	641
12-Dec	1434	39,300	27	67,900	47	0	0	107,200	74	480	1015
13-Dec	1435	37,800	26	64,900	45	0	0	102,700	71	600	1151
14-Dec	1436	36,200	25	63,000	44	0	0	99,200	69	600	1159
15-Dec	1437	22,300	15	34,700	24	0	0	57,000	40	270	135
Month Average		39,767	28	66,707	46	0	0	106,473	74	283	504
Month Total		596,500		1,000,600		0		1,597,100		4,250	7,557

TABLE 4-4

Average Production and Injection Flow Rates - December 1995

Flow rates are averages for the period December 1 - December 15 (15 days)

S1 Production Wells (11)

S1 Injection Wells (9)

INT Production Wells (48)

INT Injection Wells (37)

Well ID	gpm
S1-17	1.0
S1-19	0.8
S1-21	2.9
S1-22	0.5
S1-29	0.0
S1-30	1.3
S1-31	1.9
S1-32	4.1
S1-61	4.2
S1-62	9.4
S1-63	8.9
S1-64	1.2
<b>Total</b>	<b>36.2</b>
<b>Average*</b>	<b>3.0</b>

Well ID	gpm
S1-18	3.0
S1-20	3.9
S1-65	4.3
S1-68	3.5
S1-69	6.5
S1-70	2.1
S1-101	0.6
S1-133	3.2
<b>Total</b>	<b>27.1</b>
<b>Average</b>	<b>3.4</b>

Well ID	gpm
INT-1	0.4
INT-2	0.7
INT-3	0.1
INT-4	0.1
INT-5	1.6
INT-7	0.4
INT-8	1.4
INT-9	0.9
INT-10	2.8
INT-11	0.1
INT-12	1.2
INT-13	0.3
INT-19	0.1
INT-20	0.1
INT-21	0.2
INT-22	0.0
INT-23	0.1
INT-24	0.4
INT-26	0.6
INT-27	1.6
INT-28	0.6
INT-55	0.8
INT-56	0.2
INT-57	0.2
INT-59	0.3
INT-60	2.7
INT-61	0.7
INT-120	0.0
INT-133	1.9
INT-134	1.8
INT-143	0.8
INT-205	1.1
INT-206	0.8
INT-207	0.5
INT-208	2.8
INT-209	0.2
INT-210	1.3
INT-212	1.6
INT-213	1.3
INT-215	1.9
INT-217	1.9
INT-228	0.5
INT-229	0.5
INT-230	0.5
INT-231	0.3
INT-232	0.1
INT-233	0.1
INT-234	0.2
INT-235	0.1
INT-236	0.4
<b>Total</b>	<b>39.2</b>
<b>Average</b>	<b>0.8</b>

Well ID	gpm
INT-060-P1	3.4
INT-060-P2	2.7
INT-63	2.7
INT-64	1.9
INT-72	0.7
INT-73	1.2
INT-74	1.6
INT-75	0.3
INT-76	2.8
INT-77	3.2
INT-78	2.5
INT-79	0.7
INT-80	1.3
INT-81	2.9
INT-97	0.3
INT-98	1.0
INT-111	0.5
INT-113	1.9
INT-140	0.8
INT-203	0.9
INT-204	0.4
INT-216	1.0
INT-218	0.3
INT-219	0.7
INT-220	1.1
INT-221	0.4
INT-222	2.6
INT-223	1.1
INT-224	3.6
INT-225	1.4
INT-226	0.3
INT-227	0.4
INT-239	1.4
INT-240	1.9
INT-241	2.7
<b>Total</b>	<b>52.6</b>
<b>Average</b>	<b>1.5</b>

\* of metered wells

Note: total and average flow rates for S1 and INT units are corrected (per main flow meter readings) for use in Table 4-1.

All INT injection wells receive oxygen- and nutrient-amended injection water

TABLE 4-5

Operational Monitoring - December 1995

Activity	Frequency	Purpose
Check production and injection wells for pump, meter, and level control operation, injection pressure, and gas buildup.	Daily	Identify and respond to individual well problems; maintain operating efficiency.
Flow meter readings	Weekly	Identify and respond to individual well problems; maintain operating efficiency.
Read groundwater treatment plant in-flow and outflow meters; nutrient injection flow meters; oxygen flows, pressure and temperature; and injection header back pressure.	2x daily	Identify and respond to treatment plant problems; control nutrient and injection flow rates.
Measure T-101 influent TOC.	2x daily	Track TOC removal.
Measure dissolved oxygen at 6 representative S1 and INT injection wells.	Weekly	Control oxygen injection.
Conduct water levels DO and TOC on 22 monitoring wells.	Weekly	Define progress of new INT wells and shut-off areas. Track DO breakthrough.
Conduct TOC and DO on select production wells.	Weekly	Track TOC and DO levels in critical areas.
Conduct water levels on all monitoring wells.	Monthly	Confirm groundwater is confined within capture zone.

FIGURE 4-1

Production Flows

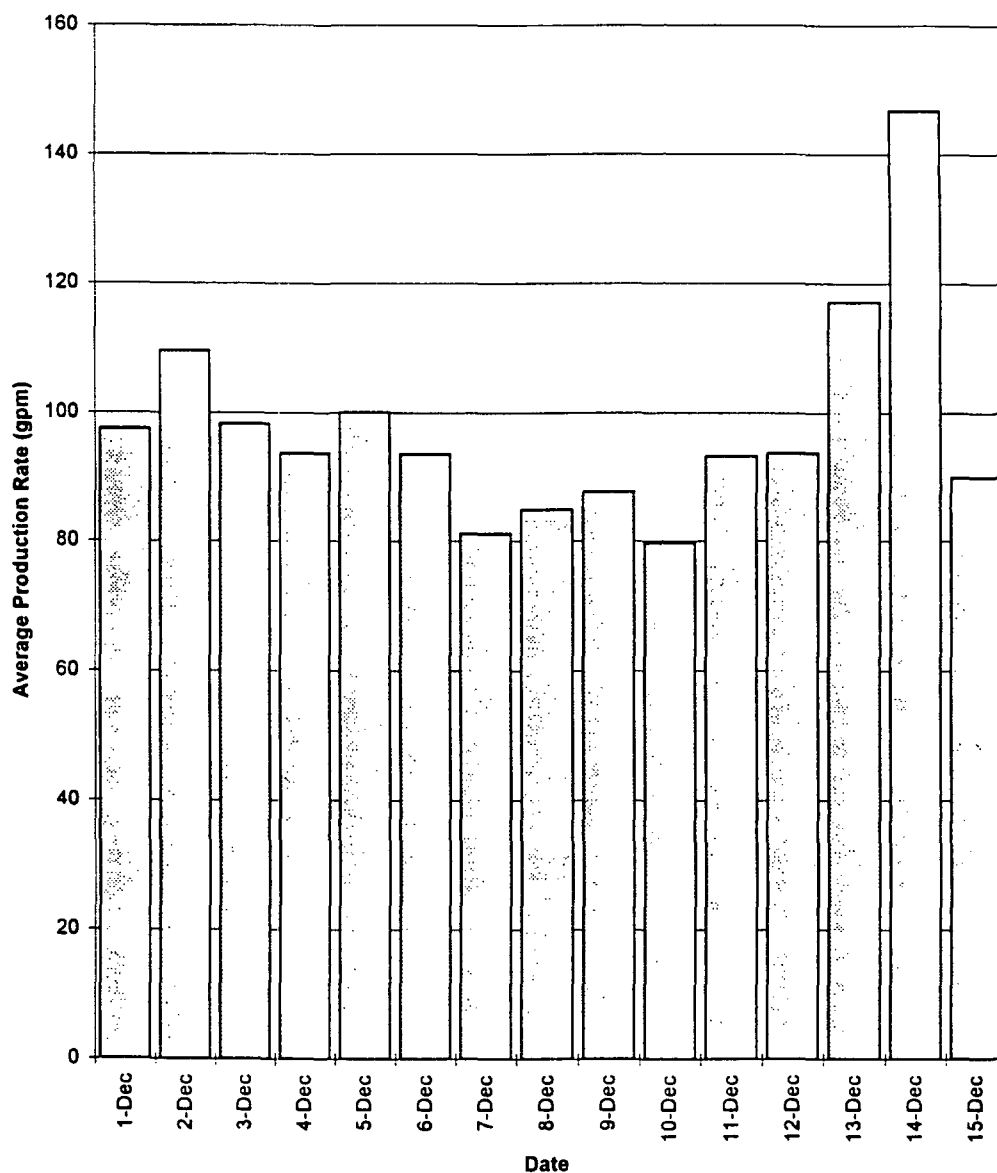




FIGURE 4-2

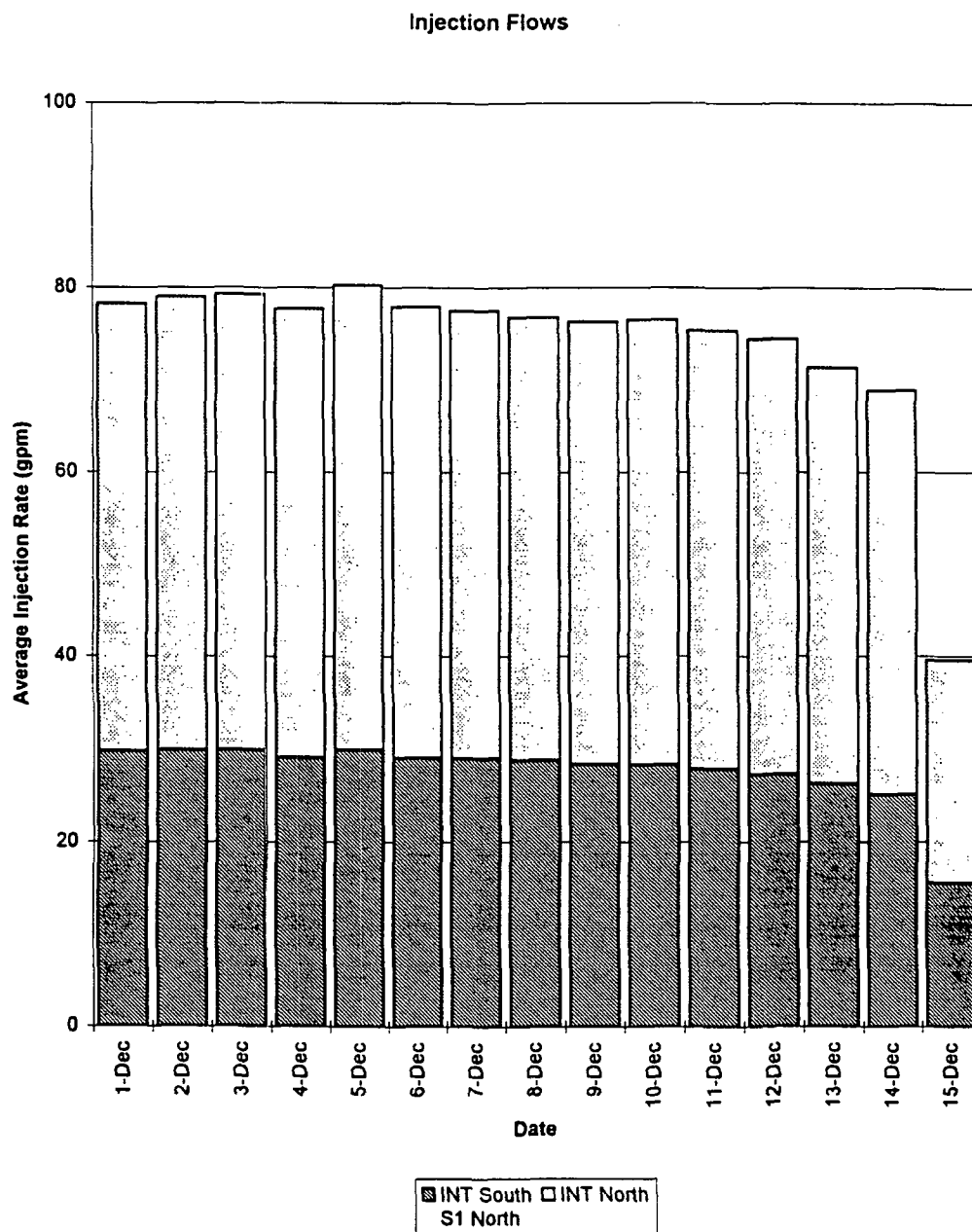


TABLE 4-6

Schedule for Shut-Down of INT and S1  
Pumping and Injection Wells

Date	Well #	Type (Prod. or Inj.)	Meter Reads	Flow Rate (gpm)	Operator tagged out
01-94	S1-35	Production			MC
	S1-43	Production			MC
05-94	S1-33	Production			MC
06-94	S1-34	Production			MC
06-94	S1-36	Production			MC
	S1-37	Production			MC
	S1-38	Production			MC
06-94	S1-42	Production			MC
	S1-23	Production			MC
	S1-5	Production			MC
12-94	S1-1	Production			WW
	S1-2	Production			WW
	S1-3	Production			WW
	S1-4	Production			WW
	S1-6	Production			WW
12-94	S1-7	Production			WW
	S1-8	Production			WW
	S1-9	Production			WW
	S1-10	Production			WW
12-94	S1-11	Production			WW
	S1-12	Production			WW
	S1-13	Production			WW
	S1-14	Production			WW
12-94	S1-15	Production			WW
	S1-16	Production			WW
	S1-58	Injection	Leaking seal		WW
January, 1995 converted S1-1 thru S1-9 to injection for recharge water table for vegetation.					
02-18-95	S1-49	Injection		1.30	
	S1-39	Production		8.50	
	S1-60	Production		4.50	
	S1-48	Production		2.50	
	INT-17	Production		0.12	

TABLE 4-6 (Continued)

Schedule for Shut-Down of INT and S1  
Pumping and Injection Wells

Date	Well #	Type (Prod. or Inj.)	Meter Reads	Flow Rate (gpm)	Operator tagged out
02-19-95	INT-85	Injection		0.33	
	INT-86	Injection		1.00	
	INT-16	Production		0.16	
	S1-50	Injection		1.85	
	S1-19	Production		3.40	back on 2/22/95
02-20-95	S1-56	Injection		3.85	
	S1-57	Injection		2.50	
	INT-87	Injection		0.51	
	INT-88	Injection		1.33	
	INT-89	Injection		1.10	
02-21-95	S1-46	Production		20.0	
	INT-15	Production		0.85	
	INT-90	Injection		2.75	
	INT-100	Injection		0.10	
02-22-95	INT-99	Injection		2.75	
	INT-91	Injection		1.69	
	INT-92	Injection		3.00	
	INT-93	Injection		1.00	
02-23-95	INT-94	Injection		0.08	
	INT-95	Injection		1.30	
	INT-96	Injection		1.00	
	S1-44	Production		9.00	
02-24-95	INT-201	Injection		1.21	
	S1-51	Injection		0.70	
	INT-33	Production		0.18	
	S1-40	Production		10.0	
02-25-95	S1-52	Injection		1.12	
	S1-53	Injection		1.75	
	INT-32	Production		1.00	
	INT-31	Production		1.55	
02-26-95	S1-41	Production		9.00	
	S1-45	Production		3.00	
	INT-30	Production		1.63	
	INT-29	Production		3.00	

TABLE 4-6 (Continued)

Schedule for Shut-Down of INT and S1  
Pumping and Injection Wells

Date	Well #	Type (Prod. or Inj.)	Meter Reads	Flow Rate (gpm)	Operator tagged out
02-27-95	INT-25	Production		0.40	
	INT-214	Production		5.10	
	INT-211	Production		1.90	
	INT-216	Production		0.70	
02-28-95	S1-24	Production		7.00	
	S1-31	Production		3.50	
	S1-47	Production		2.01	
	S1-18	Production		1.67	
4-13-95	INT-14	Production		.15	
	INT-18	Production		.44	
	INT-65	Production		.80	
	INT-66	Production		1.70	
6-5-95	S1-20	Production		3.81	
	S1-21	Production		11.02	
	S1-66	Injection		5.6	
	S1-67	Injection		8.0	
6-12-95	S1-59	Injection		5.7	
	S1-68	Injection		3.4	
7-15-95	INT-202	Injection		1.1	
8-1-95	S1-25	Production		3.0	
	S1-26	Production		4.5	
	S1-27	Production		1.3	
	S1-28	Production		4.1	
8-2-95	INT-82	Injection		0.2	
	INT-83	Injection		1.1	
	INT-84	Injection		2.2	
	INT-62	Production		0.4	
9-1-95	S1-55	Injection		2.2	
	S1-54	Injection		1.2	
	INT-71	Injection		0.8	
9-25-95	S1-21	Production - back on line		10.0	
10-2-95	S1-68	Injection - back on line		3.4	

TABLE 4-6 (Continued)

Schedule for Shut-Down of INT and S1  
Pumping and Injection Wells

Date	Well #	Type (Prod. or Inj.)	Flow Rate (gpm)	Operator tagged out
11-1-95	INT-7	Production - back on 11/24	1.0	
	INT-6	Production - back on 11/24	0.6	
	INT-8	Production - back on 11/24	1.0	
12-15-95	INT-63	Injection	2.7	
	INT-64	Injection	1.9	
	INT-72	Injection	0.7	
	INT-73	Injection	1.2	
	INT-74	Injection	1.6	
	INT-75	Injection	0.3	
	INT-76	Injection	2.8	
	INT-77	Injection	3.2	
	INT-78	Injection	2.5	
	INT-79	Injection	0.7	
	INT-80	Injection	1.3	
	INT-81	Injection	2.9	
	INT-96	Injection	1.0	
	INT-97	Injection	0.3	
	INT-98	Injection	1.0	
	INT-111	Injection	0.5	
	INT-113	Injection	1.9	
	INT-203	Injection	0.9	
	INT-204	Injection	0.4	
	INT-216	Injection	1.0	
	INT-218	Injection	0.3	
	INT-219	Injection	0.7	
	INT-220	Injection	1.1	
	INT-221	Injection	0.4	
	INT-222	Injection	2.6	
	INT-223	Injection	1.1	
	INT-224	Injection	3.6	
	INT-225	Injection	1.4	
	INT-226	Injection	0.3	
	INT-227	Injection	0.4	
	INT-239	Injection	1.4	
	INT-240	Injection	1.9	

TABLE 4-6 (Continued)

Schedule for Shut-Down of INT and S1  
Pumping and Injection Wells

Date	Well #	Type (Prod. or Inj.)	Flow Rate (gpm)	Operator tagged out
12-15-95	INT-241	Injection	2.7	
	INT-60-P1	Injection	3.4	
	INT-60-P2	Injection	2.7	
	INT-1	Production	0.4	
	INT-3	Production	0.1	
	INT-4	Production	0.1	
	INT-5	Production	1.6	
	INT-7	Production	0.4	
	INT-8	Production	1.4	
	INT-9	Production	0.9	
	INT-10	Production	2.8	
	INT-11	Production	0.1	
	INT-12	Production	1.2	
	INT-13	Production	0.3	
	INT-19	Production	0.1	
	INT-21	Production	0.2	
	INT-22	Production	0.0	
	INT-23	Production	0.1	
	INT-24	Production	0.4	
	INT-55	Production	0.8	
	INT-56A	Production	0.2	
	INT-57	Production	0.2	
	INT-58	Production	1.2	
	INT-59	Production	0.3	
	INT-60	Production	2.7	
	INT-61A	Production	0.7	
	INT-120	Production	0.0	
	INT-133	Production	1.9	
	INT-134	Production	1.8	
	INT-205	Production	1.1	
	INT-206	Production	0.8	
	INT-207	Production	0.5	
	INT-208	Production	2.8	
	INT-209	Production	0.2	
	INT-210	Production	1.3	

TABLE 4-6 (Continued)

Schedule for Shut-Down of INT and S1  
Pumping and Injection Wells

Date	Well #	Type (Prod. or Inj.)	Flow Rate (gpm)	Operator tagged out
12-15-95	INT-212	Production	1.6	
	INT-213	Production	1.3	
	INT-215	Production	1.9	
	INT-217	Production	1.9	
	INT-229	Production	0.5	
	INT-230	Production	0.5	
	INT-231	Production	0.3	
	INT-232	Production	0.1	
	INT-233	Production	0.1	
	INT-234	Production	0.2	
	INT-235	Production	0.1	
	INT-236	Production	0.4	
	INT-228	Production/Injection	0.5	
	INT-20	Production/Injection	0.1	
	S1-4	Injection (on line 12/21/95)	1.5	
	S1-5	Injection (on line 12/21/95)	1.5	
	S1-6	Injection (on line 12/21/95)	1.5	
	S1-7	Injection (on line 12/21/95)	1.5	
	S1-8	Injection (on line 12/21/95)	1.5	
	S1-9	Injection (on line 12/21/95)	1.5	
	S1-10	Injection (on line 12/21/95)	1.5	
	S1-18	Injection	3.0	
	S1-20	Injection	3.9	
	S1-31	Production/Injection	1.9	
	S1-65	Injection	4.3	
	S1-68	Injection	3.5	
	S1-69	Injection	6.5	
	S1-70	Injection	2.1	
	S1-101	Injection	0.6	
	S1-133	Injection	3.2	
	S1-17	Production	1.0	
	S1-19	Production	0.8	
	S1-21	Production	2.9	
	S1-22	Production	0.5	
	S1-30	Production	1.3	

TABLE 4-6 (Continued)

Schedule for Shut-Down of INT and S1  
Pumping and Injection Wells

Date	Well #	Type (Prod. or Inj.)	Flow Rate (gpm)	Operator tagged out
12-15-95	S1-32	Production	4.1	
	S1-33	Production	6.8	
	S1-61	Production	4.2	
	S1-62	Production	9.4	
	S1-63	Production	8.9	
	S1-64	Production	1.2	



#### **4.3 Pending Issues**

##### **4.3.1 S1 Unit Pulse Pumping**

No wells are on a pulse pump program this period. Schedule of well shut-off is included as Table 4-6.

#### **4.4 Operational Refinements**

No wells were plugged and abandoned in December; 31 wells were closed and prepared.

A phosphorous dosing of production wells was completed after shut-off with one gallon per well (see Attachment 4B). Oxygen and nutrient dosage rates were increased for elevated residuals for shut-down.

#### **4.5 Data Summary and Discussion**

##### **4.5.1 Groundwater Production and Injection**

Groundwater production target rates were adjusted to 80 gpm to compensate for the expanded shut-off. Injection target rates were adjusted to 80 gpm to compensate for the shut off.

##### **4.5.2 Groundwater Levels and Flow Directions**

Water levels will be conducted on January 15, 1996, per request of the agency.

#### **4.6 Schedule**

Baseline compliance monitoring and progress sampling is scheduled for the second week of January, 1996.

**MONTHLY PROGRESS REPORT**  
**Groundwater and Subsoil Remediation**

**French Ltd. Project**  
FLTG, Incorporated

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**ATTACHMENT 4A**

**Well Status Report**

## French Limited Project

### Well Status Report as of November 19, 1995

- Total wells = 395 + 3 deep potable wells
- S1, INT, and C2 monitoring wells destroyed or unable to locate = 21 (1984-1995)
- S1, INT, and C2 monitoring wells plugged and abandoned = 3 (1984-1990, REI and ENSR)

Sub total = 371

- Wells plugged by FLTG, 1995 = 81
 

Monitoring	- 18		
S1, production	- 22	S1, injection	- 10
INT, production	- 11	INT, injection	- 20

Sub total = 290

- Active wells

Monitoring	Combined (screened in S1 & INT)	13
	S1	71
	INT	66
	C2	6
Production	S1	11
	S1 - off, ready for P&A	7
Injection	S1	19 (7 inside lagoon)
	S1 - off, ready for P&A	6
Production	INT	46
	INT - off, ready for P&A	7
Injection	INT	33
	INT - off, ready for P&A	4
	INT - off, convert to monitoring	1 (INT-214)
Total		290

## S1-Production and Injection Wells in Numerical Order

Well	Function	Location	Size	Status
S1-1	Injection	1	6	Ready for P&A
S1-2	Injection	1	6	Ready for P&A
S1-3	Injection	1	6	Not suitable for inj., ready for P&A
S1-4	Injection	1	6	Available as inj. 12/21/95
S1-5	Injection	1	6	Available as inj. 12/21/95
S1-6	Injection	1	6	Available as inj. 12/21/95
S1-7	Injection	1	6	Available as inj. 12/21/95
S1-8	Injection	1	6	Available as inj. 12/21/95
S1-9	Injection	1	6	Available as inj. 12/21/95
S1-10	Injection	1	6	Available as inj. 12/21/95
S1-11	Production	1	6	Plugged & Abandoned
S1-12	Production	2	6	Plugged & Abandoned
S1-13	Production	2	6	Plugged & Abandoned
S1-14	Production	2	6	Plugged & Abandoned
S1-15	Production	2	6	Plugged & Abandoned
S1-16	Production	2	6	Plugged & Abandoned
S1-17	Production	3	6	On line
S1-18	Injection	3	6	On line
S1-19	Production	3	6	On line
S1-20	Injection	3	6	On line
S1-21	Production	3	6	On line
S1-22	Production	4	6	On line inside INT-11 wall
S1-23	Production	4	6	Off line, ready for P&A
S1-24	Production	4	6	Off line, ready for P&A
S1-25	Production	4	6	Off line, ready for P&A

○ = progress monitoring    • = compliance monitoring    ○• = progress & compliance  
 shaded area = long-term monitoring

## S1-Production and Injection Wells in Numerical Order

Well	Function	Location	Size	Status
S1-26	Production	4	6	Off line, ready for P&A
S1-27	Production	4	6	Off line, ready for P&A
S1-28	Production	4	6	Off line, ready for P&A
S1-29	Production	4	6	Off line, ready for P&A
S1-30	Production	5	6	On line
S1-31 o	Prod./Inj.	5	6	On line
S1-32	Production	5	6	On line
S1-33 o•	Production	6	6	On line
S1-34	Production	6	6	Plugged & Abandoned
S1-35	Production	6	6	Plugged & Abandoned
S1-36	Production	6	6	Plugged & Abandoned
S1-37	Production	6	6	Plugged & Abandoned
S1-38	Production	6	6	Plugged & Abandoned
S1-39	Production	6	6	Plugged & Abandoned
S1-40	Production	6	6	Plugged & Abandoned
S1-41	Production	6	6	Plugged & Abandoned
S1-42	Production	6	6	Plugged & Abandoned
S1-43	Production	7	6	Plugged & Abandoned
S1-44	Production	7	6	Plugged & Abandoned
S1-45	Production	7	6	Plugged & Abandoned
S1-46	Production	7	6	Plugged & Abandoned
S1-47	Production	7	6	Plugged & Abandoned
S1-48	Production	7	6	Plugged & Abandoned
S1-49	Injection	6	6	Plugged & Abandoned
S1-50	Injection	6	6	Plugged & Abandoned

o = progress monitoring    • = compliance monitoring    o• = progress & compliance  
shaded area = long-term monitoring

## S1-Production and Injection Wells in Numerical Order

Well	Function	Location	Size	Status
S1-51	Injection	6	6	Plugged & Abandoned
S1-52	Injection	6	6	Plugged & Abandoned
S1-53	Injection	6	6	Plugged & Abandoned
S1-54	Injection	7	6	Plugged & Abandoned
S1-55	Injection	7	6	Plugged & Abandoned
S1-56	Injection	7	6	Plugged & Abandoned
S1-57	Injection	7	6	Plugged & Abandoned
S1-58	Injection	3	6	Plugged & Abandoned
S1-59	Injection	3	6	Off line, ready for P&A
S1-60	Production	7	6	Plugged & Abandoned
S1-61	Production	3	6	On line
S1-62	Production	3	6	On line
S1-63	Production	3	6	On line
S1-64 o	Production	3	6	On line
S1-65	Injection	4	4	On line
S1-66	Injection	3	4	Closed, ready for P&A
S1-67	Injection	3	4	Closed, ready for P&A
S1-68	Injection	3	4	On line
S1-69	Injection	3	4	On line
S1-70	Injection	3	4	On line
S1-101	Injection	5	4	On line
S1-133	Injection	3	4	On line

o = progress monitoring    • = compliance monitoring    o • = progress & compliance  
 shaded area = long-term monitoring

## INT and S1 Monitoring Wells in Numerical Order

Well	Function	Location	Size	Status
ERT-1	Combined	1	4	On line
ERT-1A	S1	1	4	On line
ERT-2	Combined	1	4	Plugged & Abandoned
ERT-3	Combined	1	4	Plugged & Abandoned
ERT-4	Combined	1	4	Plugged & Abandoned
ERT-4A	S1	1	4	Plugged & Abandoned
ERT-5	Combined	1	4	Plugged & Abandoned
ERT-6	Combined	1	4	Plugged & Abandoned
ERT-7	Combined	1	4	Plugged & Abandoned
ERT-7A	S1	1	4	Plugged & Abandoned
ERT-8	Combined	1	4	Plugged & Abandoned
ERT-8A	S1	1	4	Plugged & Abandoned
ERT-9	Combined	1	4	Plugged & Abandoned
ERT-9A	S1	1	4	Plugged & Abandoned
ERT-10	Combined	1	4	Plugged & Abandoned
ERT-10A	S1	1	4	On line
ERT-20	Combined	7	4	On line
ERT-21	Combined	6	4	On line
ERT-22	Combined	6	4	On line
ERT-23	Combined	8	4	On line
ERT-24	Combined	5	4	On line
ERT-25	Combined	5	4	On line
ERT-26	Combined	5	4	On line
ERT-27	Combined	8	4	On line
ERT-28	Combined	8	4	On line

○ = progress monitoring      • = compliance monitoring      ○• = progress & compliance  
 shaded area = long-term monitoring

## INT and S1 Monitoring Wells in Numerical Order

Well	Function	Location	Size	Status
ERT-29	Combined	8	4	On line
ERT-30	Combined	8	4	On line
ERT-31	Combined	6	4	Destroyed, unable to locate
ERT-32	Combined	6	4	Destroyed, unable to locate
ERT-33	Combined	2	4	On line
ERT-34	S1	2	4	On line
FLTG-1	INT	6	4	On line
FLTG-2	S1	6	4	On line
FLTG-3	INT	6	4	On line
FLTG-4	S1	6	4	On line
FLTG-5	INT	6	4	On line
FLTG-6	S1	6	4	On line
FLTG-7	INT	7	4	On line
FLTG-8	S1	7	4	On line
FLTG-9	INT	7	4	On line
FLTG-10	S1	7	4	On line
FLTG-11	INT	7	4	On line
FLTG-12	S1	7	4	On line
FLTG-13•	INT	7	4	On line
FLTG-14•	S1	7	4	On line
FLTG-15	S1	7	4	On line
GW-1	INT	9	4	Destroyed, unable to locate
GW-2	INT	8	4	On line
GW-3	S1	6	4	Destroyed, unable to locate

○ = progress monitoring      • = compliance monitoring      ○• = progress & compliance  
 shaded area = long-term monitoring



## INT and S1 Monitoring Wells in Numerical Order

Well	Function	Location	Size	Status
GW-4	39' unknown	6	4	Destroyed by new Highway 90
GW-5	S1	9	4	On line
GW-6	142' C2	6	4	Destroyed REI 1986
GW-6R	unknown	6	4	Destroyed REI 1986
GW-7	S1	8	4	On line
GW-8	unknown	6	?	Destroyed
GW-9	unknown	6	?	Destroyed
GW-12	C2	9	8	On line
GW-13	S1	9	4	On line
GW-14	S1	9	4	Destroyed REI 1986
GW-15R	S1	9	4	On line (west of Crosby motel)
GW-15	S1	9	4	On line
GW-16	S1	9	4	On line
GW-17	S1	5	4	On line
GW-18	S1	8 (Riverdale)	2	On line
GW-19	S1	8	2	On line
GW-20	S1	8	2	On line
GW-21	S1	-	-	Plugged & Abandoned 1984
GW-22	S1	7	2	On line
GW-23	S1	8	2	On line
GW-24	S1	Waitkus property	2	unable to locate
GW-25	C2	6	2	Plugged & Abandoned REI 1986

○ = progress monitoring      ● = compliance monitoring      ○● = progress & compliance  
 shaded area = long-term monitoring

## INT and S1 Monitoring Wells in Numerical Order

Well	Function	Location	Size	Status
P-1	INT	4	2	Destroyed 1990
P-2	INT	4	2	Destroyed 1990
P-3	INT	4	2	On line
P-4	INT	4	2	On line
P-5 o •	S1	4	2	On line
P-6 o •	S1	1	2	On line
P-101 (MR-1)	S1	8	4	On line
REI-1	Landfill cap monitoring	8	2	Plugged & Abandoned
REI-3-1	S1	6	4	Damaged but okay
REI-3-2	INT	6	4	Damaged but okay
REI-3-4	145' C2	6	4	Okay
REI-3-5	S1	6	4	Destroyed
REI-4-1	INT	8 (Riverdale)	4	Unable to locate
REI-4-2	S1	8 (Riverdale)	4	Unable to locate
REI-5	S1	8	2	On line
REI-6-1	INT	4	4	Plugged & Abandoned
REI-6-2	S1	4	4	Plugged & Abandoned
REI-7	136', C2	7	4	On line
REI-8	S1	8	2	On line
REI-9	S1	8	2	Destroyed
REI-10-1	151', C2	5	4	Plugged & Abandoned, ENSR 1989
REI-10-2	INT	5	4	On line

o = progress monitoring    • = compliance monitoring    o • = progress & compliance  
shaded area = long-term monitoring

## INT and S1 Monitoring Wells in Numerical Order

Well	Function	Location	Size	Status
REI-10-3	INT	5	4	On line
REI-10-4	INT	5	4	Destroyed
REI-11	152', C2	6	4	On line
REI-12-1	151', C2	9	4	On line
REI-12-2	INT	9	4	On line
REI-P10-2	92', C2	5	1.25	Destroyed per Mike Day, 1991
REI-P10-3	84', C2	5	2	Destroyed
REI-P10-4	82', C2	5	2	Destroyed
W01	INT	4	6	On line
W02	INT	4	4	On line
W03	INT	4	4	On line
W05	INT	4	4	On line
W06	INT	4	4	On line
W07	INT	1	4	On line
S1-50-P-1	S1	6	2	On line
S1-50-P-2	S1	6	2	On line
S1-50-P-3	S1	6	2	On line
S1-51-P-1	S1	6	2	On line
S1-51-P-2	S1	6	2	On line
S1-51-P-3•	S1	6	2	On line
S1-102	S1	5	4	On line
S1-103	S1	4	4	On line
S1-104	S1	3	4	On line
S1-105	S1	3	4	On line

○ = progress monitoring      • = compliance monitoring      ○• = progress & compliance  
 shaded area = long-term monitoring

## INT and S1 Monitoring Wells in Numerical Order

Well	Function	Location	Size	Status
S1-106 ◦	S1	7	4	On line
S1-106A •	S1	7	4	On line
S1-107	S1	6	4	On line
S1-108	S1	6	4	On line
S1-108A •	S1	6	4	On line
S1-109	S1	6	4	On line
S1-110	S1	6	4	On line
S1-111 ◦	S1	6	4	On line
S1-112	S1	6	4	On line
S1-113	S1	6	4	On line
S1-114	S1	6	4	On line
S1-115	S1	9	4	On line
S1-116	S1	9	4	On line
S1-117	S1	9	4	On line
S1-118 ◦	S1	5	4	On line
S1-119 ◦ •	S1	2	4	On line
S1-120	S1	3	4	On line
S1-121 ◦ •	S1	3	4	On line
S1-122	S1	3	4	On line
S1-123 ◦	S1	3	4	On line
S1-124	S1	2	4	On line
S1-125	S1	2	4	On line
S1-126 ◦	S1	2	4	On line
S1-127	S1	3	4	On line
S1-128	S1	3	4	On line

◦ = progress monitoring    • = compliance monitoring    ◦ • = progress & compliance  
 shaded area = long-term monitoring

## INT and S1 Monitoring Wells in Numerical Order

Well	Function	Location	Size	Status
S1-129	S1	3	4	On line
S1-130	S1	3	4	On line
S1-131 o	S1	3	4	On line
S1-132	S1	3	4	On line
S1-134	S1	3	4	On line
S1-135•	S1	8	4	On line
S1-137•	S1	8	4	On line
S2-101	135', C2	6	4	On line
MR-2	S1	5	4	On line
MR-3	S1	5	4	On line
MR-4	S1	5	4	On line
MRP-3	S1	5	2	On line
INT-59-P-1	INT	4	2	On line
INT-59-P-2 o	INT	4	2	On line
INT-59-P-3	INT	4	2	On line
INT-59-P-4	INT	4	2	On line
INT-60-P-1	INT	4	2	On line
INT-60-P-2	INT	4	2	On line
INT-60-P-3 o	INT	4	2	On line
INT-60-P-4	INT	4	2	On line
INT-101 o	INT	5	4	On line
INT-102	INT	3	4	On line
INT-103	INT	3	4	On line
INT-104	INT	7	4	On line
INT-105	INT	7	4	On line

o = progress monitoring    • = compliance monitoring    o• = progress & compliance  
 shaded area = long-term monitoring

## INT and S1 Monitoring Wells in Numerical Order

Well	Function	Location	Size	Status
INT-106 o •	INT	7	4	On line
INT-107	INT	6	4	On line
INT-108 •	INT	6	4	On line
INT-109	INT	6	4	On line
INT-110	INT	6	4	On line
INT-111	INT	6	4	On line
INT-112	INT	6	4	On line
INT-114	INT	4	4	On line
INT-115	INT	6	4	On line
INT-116	INT	9	4	On line
INT-117	INT	9	4	On line
INT-118 o	INT	5	4	On line
INT-119	INT	6	4	On line
INT-121	INT	4	4	On line
INT-122	INT	4, INT-11 wall	4	On line
INT-123 o	INT	4	4	On line
INT-124	INT	4	4	Plugged & Abandoned
INT-125	INT	4	4	Plugged & Abandoned
INT-126	INT	4	4	On line
INT-127 o	INT	4	4	On line
INT-128	INT	4	4	On line
INT-130	INT	3	4	On line
INT-131	INT	2	4	On line
INT-132	INT	5	4	On line

o = progress monitoring    • = compliance monitoring    o • = progress & compliance  
shaded area = long-term monitoring

## INT and S1 Monitoring Wells in Numerical Order

Well	Function	Location	Size	Status
INT-135 o •	INT	8	4	On line
INT-137 •	INT	8	4	On line
INT-138	INT	8	4	On line
INT-139	INT	8	4	On line
INT-141	INT	8	4	On line
INT-142	INT	8	4	On line
INT-143	INT	8	4	On line
INT-144 o •	INT	8	4	On line
INT-145	INT	8	4	On line
INT-146	INT	8	4	On line

o = progress monitoring    • = compliance monitoring    o • = progress & compliance  
 shaded area = long-term monitoring

## INT Production and Injection Wells in Numerical Order

Well	Function	Location	Size	Status
INT-01	Production	5	6	On line
INT-02	Injection	5	4	On line
INT-03	Production	5	6	On line
INT-04	Production	5	6	On line
INT-05	Production	4	6	On line
INT-06	Production	4	6	Off line
INT-07	Production	4	6	On line
INT-08	Production	4	6	On line
INT-09	Production	4	6	On line
INT-10	Production	4	6	On line
INT-11	Production	4	6	On line
INT-12	Production	4	6	On line
INT-13	Production	3	6	On line
INT-14	Production	3	6	Off line
INT-15	Production	3	6	Plugged & Abandoned
INT-16	Production	3	6	Plugged & Abandoned
INT-17	Production	3	6	Plugged & Abandoned
INT-18	Production	3	6	Plugged & Abandoned
INT-19	Production	4	6	On line
INT-20	Prod./Inj.	5	6	On line
INT-21	Production	5	6	On line
INT-22 o •	Production	6	6	On line
INT-23	Production	6	6	On line
INT-24	Production	6	6	On line
INT-25	Production	6	6	Plugged & Abandoned

o = progress monitoring    • = compliance monitoring    o • = progress & compliance  
shaded area = long-term monitoring



## INT Production and Injection Wells in Numerical Order

Well	Function	Location	Size	Status
INT-26•	Production	6	6	Off line, ready for P&A
INT-27	Production	6	6	Off line, ready for P&A
INT-28	Production	6	6	Off line, ready for P&A
INT-29	Production	6	6	Plugged & Abandoned
INT-30	Production	6	6	Plugged & Abandoned
INT-31	Production	7	6	Plugged & Abandoned
INT-32	Production	7	6	Plugged & Abandoned
INT-33	Production	7	6	Plugged & Abandoned
INT-55	Production	5	6	On line
INT-56A	Production	5	6	On line
INT-56B	Injection	5	6	Closed, ready for P&A
INT-57	Production	5	6	On line
INT-58	Production	4	6	On line
INT-59	Production	4	6	On line
INT-60	Production	4	6	On line
INT-61A	Production	4	6	On line
INT-61B	Injection	4	6	Closed, ready for P&A
INT-62A	Production	4	6	Off line, ready for P&A
INT-62B	Injection	4	6	Closed, ready for P&A
INT-63	Injection	4	6	On line
INT-64	Injection	4	6	On line
INT-65	Production	3	6	Plugged & Abandoned
INT-66	Injection	3	6	Plugged & Abandoned
INT-71	Injection	3	6	Plugged & Abandoned
INT-72	Injection	5	2	On line

○ = progress monitoring    • = compliance monitoring    ○• = progress & compliance  
 shaded area = long-term monitoring

## INT Production and Injection Wells in Numerical Order

Well	Function	Location	Size	Status
INT-73	Injection	5	2	On line
INT-74	Injection	5	2	On line
INT-75	Injection	5	2	On line
INT-76	Injection	8	2	On line
INT-77	Injection	8	2	On line
INT-78	Injection	8	2	On line
INT-79	Injection	6	2	On line
INT-80	Injection	6	2	On line
INT-81	Injection	6	2	On line
INT-82	Injection	6	2	Plugged & Abandoned
INT-83	Injection	6	2	Plugged & Abandoned
INT-84	Injection	6	2	Plugged & Abandoned
INT-85	Injection	6	2	Plugged & Abandoned
INT-86	Injection	6	2	Plugged & Abandoned
INT-87	Injection	6	2	Plugged & Abandoned
INT-88	Injection	6	2	Plugged & Abandoned
INT-89	Injection	6	2	Plugged & Abandoned
INT-90	Injection	6	2	Plugged & Abandoned
INT-91	Injection	6	2	Plugged & Abandoned
INT-92	Injection	6	2	Plugged & Abandoned
INT-93	Injection	6	2	Plugged & Abandoned
INT-94	Injection	6	2	Plugged & Abandoned
INT-95	Injection	6	2	Plugged & Abandoned
INT-96	Injection	5	2	On line
INT-97	Injection	5	2	On line

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 shaded area = long-term monitoring

## INT Production and Injection Wells in Numerical Order

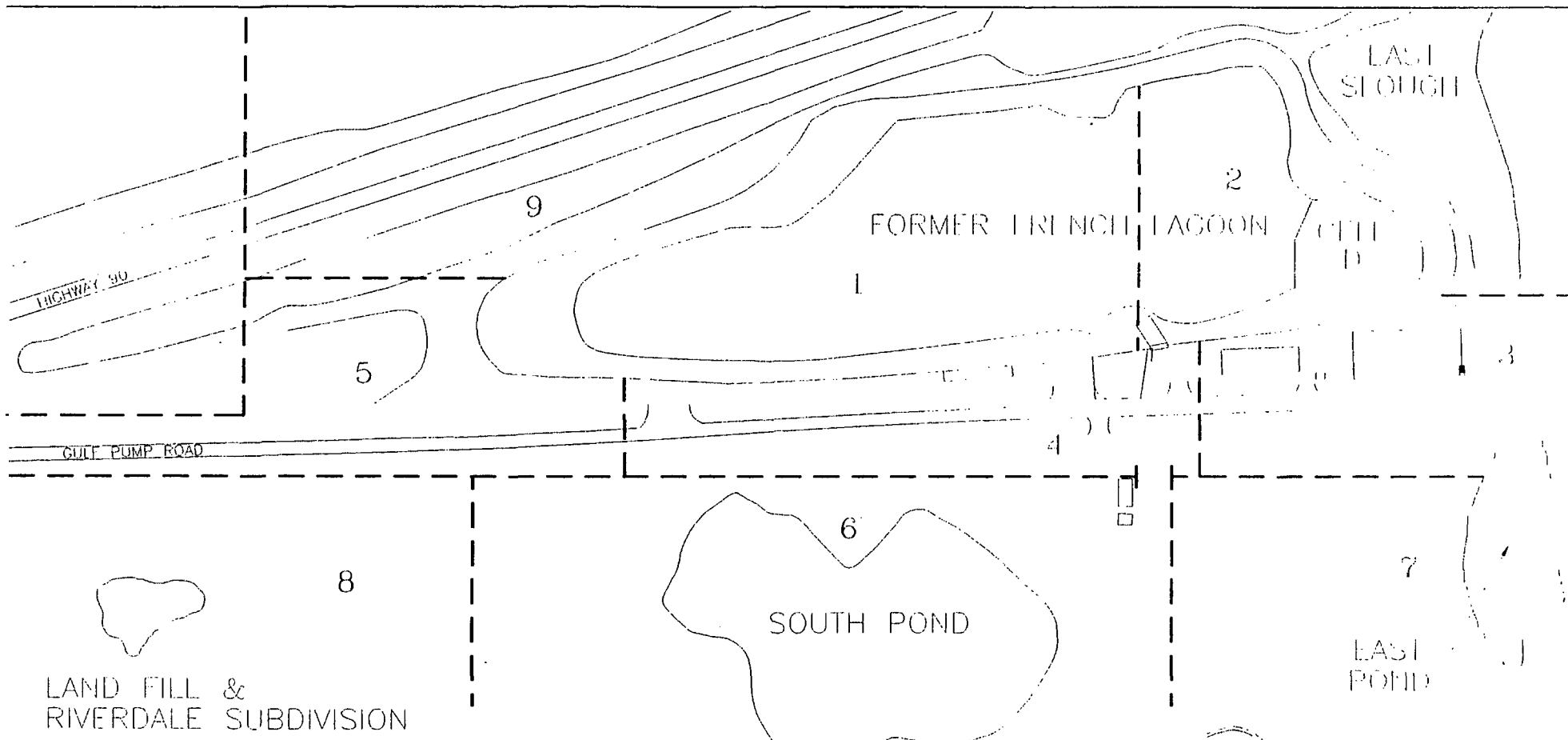
Well	Function	Location	Size	Status
INT-98	Injection	5	2	On line
INT-99	Injection	3	2	Plugged & Abandoned
INT-100	Injection	3	2	Plugged & Abandoned
INT-201	Injection	6	2	Plugged & Abandoned
INT-202	Injection	4, inside INT-11 wall	2	Plugged & Abandoned
INT-203	Injection	4	2	On line
INT-204	Injection	4	2	On line
INT-205	Production	5	6	On line
INT-206	Production	5	6	On line
INT-207	Production	8	6	On line
INT-208	Production	8	6	On line
INT-209	Production	8	6	On line
INT-210	Production	8	6	On line
INT-211	Production	6	6	Off line, ready to P&A
INT-212	Production	5	6	On line
INT-213	Production	6	6	On line
INT-214•	Production	6	6	Off line, convert to monitor well long-term
INT-215	Production	5	6	On line
INT-216	Injection	8	6	On line
INT-217◦	Production	6	6	On line
INT-218	Injection	5	2	On line
INT-219	Injection	5	2	On line
INT-220	Injection	5	2	On line


◦ = progress monitoring    • = compliance monitoring    ◦• = progress & compliance  
 shaded area = long-term monitoring

## INT Production and Injection Wells in Numerical Order

Well	Function	Location	Size	Status
INT-221	Injection	5	2	On line
INT-222	Injection	5	2	On line
INT-223	Injection	5	2	On line
INT-224	Injection	4	2	On line
INT-225	Injection	4	2	On line
INT-226	Injection	8, RD-1	2	On line
INT-227	Injection	8, RD-1	2	On line
INT-228	Prod./Inj.	4	6	On line
INT-229	Production	8, RD-1	6	On line
INT-230	Production	4	6	On line
INT-231	Production	5	6	On line
INT-232	Production	5	6	On line
INT-233 o	Production	5	6	On line
INT-234	Production	5	6	On line
INT-235	Production	8	6	On line
INT-236	Production	8	6	On line
INT-239	Injection	5	4	On line
INT-240	Injection	5	4	On line
INT-241	Injection	5	4	On line
INT-111	Injection	6	4	On line
INT-113	Injection	5	4	On line
INT-120 o	Production	4	4	On line
INT-133	Production	8	4	On line
INT-134 o	Production	8	4	On line

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shaded area = long-term monitoring



	<b>BAYTOWN DRAFTING INC.</b> 400 HUGH ECHOLS BLVD. BAYTOWN, TEXAS 77621
FLTC, INC. FRENCH LIMITED SITE CROSBY, TEXAS	
WELL STATUS LOCATION MAP	
NOVEMBER 19, 1995	

**ATTACHMENT 4B**

**Phosphorous Dosing of Injection and Production Wells**

# Phosphorous Dosing of Injection Wells

Well	Gal	11/8	Initials	11/15	Initials	11/22	Initials	11/29	Initials	12/6	Initials	12/13	Initials
S1-133	1	1755	EO	1715	EO	1325	EO	1120	EO	0220	RR	1105	EO
S1-20	1	1740	EO	1635	EO	1625	EO	1530	EO	0240	RR	1440	EO
S1-18	1	1750	EO	1705	EO	1330	EO	1125	EO	0270	RR	1115	EO
S1-68	1	1713	EO	1640	EO	1335	EO	1127	EO	0310	RR	1435	EO
S1-31	1	1540	EO	1400	EO	1350	EO	1345	EO	0335	RR	pumping	
S1-101	1	1555	EO	1310	EO	1345	EO	1150	EO	0345	RR	off	
INT-143	1	1720	EO	1645	EO	1620	EO	1535	EO	0715	RR	1445	EO
INT-228	1			1650	EO							pumping	
INT-224	1	1735	EO	1655	EO	1615	EO	1540	EO	0245	RR	1425	EO
INT-225	1	1730	EO	1700	EO	1600	EO	1543	EO	0250	RR	1430	EO
INT-203	1	1723	EO	1630	EO	1640	EO	1545	EO	0330	RR	1450	EO
INT-2	1	1550	EO	1350	EO	1400	EO	1340	EO	0340	RR	1200	EO
INT-72	1	1650	EO	1415	EO	1435	EO	1345	EO	0330	RR	1230	EO
INT-73	1	1525	EO	1315	EO	1405	EO	1128	EO	0325	RR	1137	EO
INT-74	1	1635	EO	1427	EO	1450	EO	1399	EO	0350	RR	1320	EO
INT-75	1	1642	EO	1435	EO	1500	EO	1400	EO	0345	RR	1205	EO
INT-97	1	1600	EO	1340	EO	1350	EO	1210	EO	0355	RR	1130	EO
INT-98	1	1620	EO	1350	EO	1355	EO	1207	EO	0405	RR	1135	EO
INT-113	2	1450	EO	1330	EO	1425	EO	1200	EO	0305	RR	1157	EO
INT-218	1	1610	EO	1345	EO	1430	EO	1205	EO	0405	RR	1125	EO
INT-219	1	1700	EO	1420	EO	1440	EO	1415	EO	0415	RR	1335	EO
INT-220	1	1646	EO	1410	EO	1445	EO	1405	EO	0400	RR	1210	EO
INT-221	1	1500	EO	1335	EO	1405	EO	1155	EO	0255	RR	1140	EO
INT-226	1	1415	EO	1540	EO	1543	EO	1445	EO	0655	RR	1410	EO
INT-227	1	1410	EO	1535	EO	1547	EO	1450	EO	0710	RR	1415	EO
INT-223	1	1640	EO	1425	EO	1450	EO	1345	EO	0355	RR	1325	EO
INT-239	2	1510	EO	1320	EO	1420	EO	1130	EO	0310	RR	1145	EO
INT-240	2	1515	EO	1322	EO	1415	EO	1135	EO	0315	RR	1150	EO
INT-241	2	1520	EO	1325	EO	1410	EO	1140	EO	0320	RR	1155	EO
INT-76	1	1355	EO	1500	EO	1510	EO	1420	EO	0458	RR	1357	EO
INT-77	1	1350	EO	1505	EO	1515	EO	1420	EO	0450	RR	1340	EO
INT-78	1	1341	EO	1510	EO	1520	EO	1420	EO	0445	RR	1355	EO
INT-79	1	1425	EO	1615	EO	1530	EO	1505	EO	0410	RR	1215	EO
INT-80	1	1435	EO	1625	EO	1550	EO	1507	EO	0420	RR	1344	EO
INT-81	1	1000 (11/9)	EO	1620	EO	1555	EO	1510	EO	0435	RR	1350	EO
INT-111	1	1330	EO	1610	EO	1533	EO	1500	EO	0430	RR	off	
INT-140	1	1420	EO	1545	EO	1540	EO	1445	EO	0725	RR	1405	EO
INT-216	1	1405	EO	1530	EO	1537	EO	1440	EO	0630	RR	1401	EO
INT-222	1	1400	EO	1520	EO	1505	EO	1425	EO	0505	RR	1212	EO

## Phosphorous Dosing of Production Wells

Well	Gal	Date	Well	Gal	Date
INT-1	1	12-15-95	INT-232	1	12-15-95
INT-3	1	12-15-95	INT-233	1	12-15-95
INT-4	1	12-15-95	INT-234	1	12-15-95
INT-5	1	12-15-95	INT-235	1	12-15-95
INT-7	1	12-15-95	INT-236	1	12-15-95
INT-8	1	12-15-95	INT-228	1	12-15-95
INT-9	1	12-15-95	INT-20	1	12-15-95
INT-10	1	12-15-95	S1-17	1	12-15-95
INT-11	1	12-15-95	S1-19	1	12-15-95
INT-12	1	12-15-95	S1-21	1	12-15-95
INT-13	1	12-15-95	S1-22	1	12-15-95
INT-19	1	12-15-95	S1-30	1	12-15-95
INT-21	1	12-15-95	S1-32	1	12-15-95
INT-22	1	12-15-95	S1-33	1	12-15-95
INT-23	1	12-15-95	S1-61	1	12-15-95
INT-24	1	12-15-95	S1-62	1	12-15-95
INT-55	1	12-15-95	S1-63	1	12-15-95
INT-56A	1	12-15-95	S1-64	1	12-15-95
INT-57	1	12-15-95			
INT-58	1	12-15-95			
INT-59	1	12-15-95			
INT-60	1	12-15-95			
INT-61A	1	12-15-95			
INT-120	1	12-15-95			
INT-133	1	12-15-95			
INT-134	1	12-15-95			
INT-205	1	12-15-95			
INT-206	1	12-15-95			
INT-207	1	12-15-95			
INT-208	1	12-15-95			
INT-209	1	12-15-95			
INT-210	1	12-15-95			
INT-212	1	12-15-95			
INT-213	1	12-15-95			
INT-215	1	12-15-95			
INT-217	1	12-15-95			
INT-229	1	12-15-95			
INT-230	1	12-15-95			
INT-231	1	12-15-95			



**ATTACHMENT 4C**

**Schedule for Well Plug and Abandon**

## Schedule for Plug and Abandon of Monitoring Wells

[illegible]

## Schedule for Plug and Abandon of 2" INT and S1 Wells

Well #	Well Closed	Well Treated/ Sounded		Well Depth	Cu. Ft. Grout	Plugging Complete Date/TOC ft.		Plugging Report
INT-95	9/5	9/13	49.8	48.0	1.0	9/22	45.2	9/30/95
INT-85	9/5	9/13	52.0	50.0	1.0	9/22	47.6	10/2/95
INT-86	9/5	9/13	51.8	49.0	1.0	9/22	47.2	10/2/95
INT-96	9/5	9/13	46.4	50.0	1.0	9/22	41.8	10/2/95
INT-87	9/6	9/13	44.9	55.0	1.2	9/22	41.5	9/30/95
INT-88	9/6	9/13	37.0	47.5	.75	9/22	33.2	9/30/95
INT-89	9/6	9/13	39.9	44.5	.75	9/22	35.4	9/30/95
INT-93	9/6	9/13	47.1	43.5	1.0	9/22	43.1	10/31/95
INT-99	9/6	9/13	58.8	55.0	1.2	10/4	55.3	10/18/95
INT-92	9/19	9/13	48.6	51.0	1.0	9/22	43.8	9/30/95
INT-90	9/27	9/27	46.9	46.5	1.0	10/12	41.7	10/31/95
INT-100	9/27	9/27	46.4	51.5	1.0	10/12	40.8	10/31/95
INT-201	10/5	10/9	52.2	50.0	1.0	10/12	48.8	10/18/95
INT-82	10/5	10/9	40.3	49.5	1.0	10/12	36.0	10/18/95
INT-83	10/5	10/9	56.6	57.0	1.5	10/12	51.7	10/18/95
INT-84	10/5	10/9	49.2	48.0	1.2	10/12	45.7	10/18/95
INT-91	10/5	10/9	56.2	54.3	1.2	10/12	50.9	10/18/95
INT-85	10/5	10/9	52.1	50.0	1.0	10/12	47.1	10/18/95
INT-202	10/5	10/18	49.5	47.0	1.0	10/18	43.3	10/31/95
INT-94	10/5	10/9	52.1	49.5	1.0	10/12	47.4	10/18/95
INT-203	12/20/95	12/20/95						
INT-204	12/20/95	12/20/95						
INT-74	12/20/95	12/20/95						
INT-75	12/20/95	12/20/95						
INT-228	12/20/95	12/20/95						
INT-72	12/20/95	12/20/95						
INT-219	12/20/95	12/20/95						
INT-220	12/20/95	12/20/95						

## Schedule for Plug and Abandon of 4" INT and S1 Wells

[illegible]

### Schedule for Plug and Abandon of 6" INT and S1 Wells

Well #	Well Closed	Well Treated/ Sounded		Well Depth	Cu. Ft. Grout	Plugging Complete Date/TOC ft.		Plugging Report
S1-42	8/28	9/5	29.5	29.5	5.8	9/13	26.7	9/14/95
INT-31	8/28	9/5	49.5	52.0	10.2	9/13	49.0	9/14/95
INT-66	8/29	9/5	45.9	50.5	9.9	9/14	42.9	9/16/95
S1-43	8/29	9/5	29.2	30.0	6.0	9/13	26.4	9/14/95
INT-32	8/30	9/5	50.0	50.0	9.9	9/14	41.5	9/16/95
INT-33	8/30	9/5	49.0	49.0	9.0	9/22	46.4	10/2/95
S1-48	8/30	9/5	29.1	28.0	5.5	9/15	25.4	9/16/95
S1-47	8/30	9/5	31.2	32.0	6.3	9/15	27.0	9/16/95
S1-45	8/31	9/5	32.0	32.0	6.3	9/15	29.3	9/16/95
S1-46	8/31	9/5	30.0	30.5	6.0	9/14	26.1	9/16/95
S1-60	8/31	9/5	29.4	30.0	6.0	9/22	25.9	10/2/95
S1-44	9/1	9/15	29.9	31.5	6.1	9/15	27.0	9/16/95
INT-30	9/1	9/13	47.7	50.0	10.0	9/20	42.5	10/2/95
S1-40	9/1	9/13	26.6	28.0	5.5	9/20	22.0	9/30/95
INT-29	9/4	9/13	50.6	50.0	9.9	9/20	48.5	10/2/95
S1-41	9/4	9/13	29.5	30.5	6.0	9/20	25.3	10/2/95
INT-25	9/4	9/13	50.2	50.0	10.0	9/20	46.7	10/2/95
S1-39	9/4	9/13	30.0	30.0	6.0	9/20	26.0	9/30/95
S1-38	9/4	9/13	26.2	25.0	4.5	9/20	19.6	9/30/95
S1-36	9/4	9/13	26.8	27.0	5.3	9/20	23.4	9/30/95
S1-37	9/4	9/13	26.8	27.0	5.3	9/20	24.0	9/30/95
S1-35	9/4	9/13	20.9	22.0	4.5	9/22	18.1	9/30/95
S1-34	9/4	9/13	24.4	24.0	5.0	9/22	21.3	9/30/95
INT-71	9/5	9/13	51.4	51.0	10.0	9/22	48.4	10/2/95
S1-56	9/5	9/13	29.6	30.0	5.7	9/22	26.0	9/30/95
S1-54	9/5	9/13	24.4	26.0	5.2	9/22	21.2	9/30/95
S1-57	9/5	9/13	27.5	29.0	5.7	9/22	24.6	9/30/95
S1-55	9/27	9/27	30.4	30.0	5.8	10/4	26.3	10/31/95

## Schedule for Plug and Abandon of 6" INT and S1 Wells

Well #	Well Closed	Well Treated/ Sounded		Well Depth	Cu. Ft. Grout	Plugging Complete Date/TOC ft.		Plugging Report
INT-15	9/28	10/4	47.8	52.0	10.0	10/4	42.8	10/18/95
INT-16	9/28	10/3	44.0	50.0	9.0	10/4	41.6	10/18/95
INT-17	9/28	10/3	56.8	56.0	11.0	10/4	53.2	10/18/95
S1-53	10/5	10/9	25.6	29.0	5.0	10/12	21.3	10/18/95
S1-52	10/5	10/9	19.0	28.0	5.0	10/12	14.8	10/18/95
S1-51	10/5	10/9	22.7	26.0	5.0	10/12	18.1	10/18/95
S1-50	10/5	10/9	23.5	27.0	5.0	10/12	19.3	10/18/95
S1-49	10/5	10/9	25.0	26.0	5.0	10/12	20.2	10/18/95
S1-11	10/13	10/18	30.6	34.0	5.5	10/19	29.0	10/30/95
S1-12	10/13	10/18	27.7	30.0	5.3	10/19	26.1	10/30/95
S1-13	10/13	10/18	24.7	31.0	5.1	10/19	23.3	10/30/95
S1-14	10/13	10/18	24.0	33.0	5.0	10/19	19.4	10/30/95
S1-15	10/13	10/18	35.0	34.5	5.5	10/19	31.0	10/30/95
S1-16	10/13	10/18	32.6	35.0	5.2	10/19	27.0	10/30/95
S1-58	10/13	10/18	24.2	27.0	5.0	10/19	25.3	10/30/95
INT-18	10/13	10/18	48.8	50.0	9.5	10/19	45.0	10/30/95
INT-65	10/13	10/18	48.0	50.0	9.5	10/19	45.6	10/30/95
S1-59	12/20/95	12/20/95						
S1-21	12/20/95	12/20/95						
INT-19	12/20/95	12/20/95						
INT-230	12/20/95	12/20/95						
INT-228	12/20/95	12/20/95						
INT-61	12/20/95	12/20/95						
INT-62	12/20/95	12/20/95						
INT-63	12/20/95	12/20/95						
INT-58	12/20/95	12/20/95						
INT-59	12/20/95	12/20/95						
INT-60	12/20/95	12/20/95						

## Schedule for Plug and Abandon of 6" INT and S1 Wells

[illegible]

## 5.0 GROUNDWATER TREATMENT PLANT

### 5.1 Summary of Activities

The groundwater treatment was partially shut down on December 15, 1995. T-101, R-1, and R-2 were taken out of service and drained for cleaning which started on December 18, 1995.

Approximately 4,000 cu. ft. of solids have been removed from these vessels which represents 90% completion of the cleaning.

A considerable amount of water is used to flush these solids that are wasted to Cell D. The clarifier, sand filters, and carbon filters are still in service to treat the supernatant off these sludges and rainfall for discharge.

A schedule of the shut-down and demobilization sequence is included as Attachment 5A.

Although a large volume of water was processed through the carbon filters, break-through has not occurred, therefore, no transfers were conducted in December.

One minor mechanical failure was the P-210 sump pump that was pulled for re-building.

There have been no discharge excursions for this reporting period.

Total flows for December, 1995:

Water discharged to the San Jacinto River - 3,345,300 gallons

Water discharged to the Lagoon - 118,000 gallons

Sludge discharged to the Lagoon - approximately 4,000 cu. ft. (from tank bottoms)

Groundwater processed through the GWT - 2,919,300 metered gallons

Water discharged to the South Pond - 0



Water blended passed Carbon Filter - 1,379,400 gallons

Water treated through Carbon Filter - 1,960,900 gallons

Water processed from Cell D to GWT plant - 426,000 gallons

Cell D injection at S1-4 through S1-10: metered - 0

## **5.2 Inoculum/Nutrient Addition**

The following have been introduced into the bioreactors/clarifier:

Nutrients:

190 gallons Diammonium Phosphate

Microbes:

12 oz. French Limited Isolated Microbes

Coagulant:

6.0 gallons Percol 778 Cationic Polymer

## **5.3 Maintenance**

Table 5-1 lists the preventive maintenance items performed in December.

## **5.4 Operating Data**

Table 5-2 summarizes the laboratory analysis of the treated water discharged to the San Jacinto River.

TABLE 5-1

Preventive Maintenance

Day	Action
December 4	Lubed sump pumps 1 and 2 behind 4 ft. containment wall.
December 5	Completed safety inspection of all electrical tools, extension cords, office equipment, and ladders.
December 6	Completed electrical safety inspection of all office equipment in the Crosby office.
December 8	Lubed all pumps in GWT Plant. Lubed Blowers 1, 2, and 3.
December 11	Lubed gate rollers and locks.
December 13	Changed air and water filters in C1-C and C1-D.

MONTHLY PROGRESS REPORT  
Groundwater Treatment Plant

French Ltd. Project  
FLTG, Incorporated

TABLE 5-2  
Treated Water Results Summary

Collected	Set No.	pH		TSS		TOC		O&G		Benzene		Chlor HC's		Total PCBs		Naphthalene	
		(6-9)		5 PPM		55 PPM		15 PPM		150 PPB		500 PPB		0.65 PPB		300 PPB	
		Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg
1-May-95	M03A0330	7.63		1.		12.1		2.5		2.5		177.		.16		5.	
4-May-95	M03A0331	7.91		4.		12.5		2.5		2.5		222.		.16		5.	
8-May-95	M03A0332	7.95		4.		11.3		2.5		2.5		228.		.16		5.	
11-May-95	M03A0334	7.97		4.		10.9		2.5		2.5		235.		.16		5.	
15-May-95	M03A0333	7.87		8.		13.7		2.5		2.5		209.		.16		5.	
18-May-95	M03A0335	7.73		6.		11.		2.5		6.		374.		.16		5.	
22-May-95	M03A0336	7.88		1.		31.		2.5		6.		274.		.16		5.	
29-May-95	M03A0337	7.76		1.		45.		2.5		6.		227.		.16		5.	
5-Jun-95	M03A0338	7.53	7.8	.5	3.3	12.1	17.7	2.5	2.5	2.5	3.7	189.	237	.16	.16	5.	5.
12-Jun-95	M03A0339	7.78	7.8	1.	3.3	45.8	21.5	2.5	2.5	2.5	3.7	188.	238	.16	.16	5.	5.
19-Jun-95	M03A0440	7.68	7.8	5.	3.4	7.	20.9	2.5	2.5	2.5	3.7	144.	230	.16	.16	5.	5.
26-Jun-95	M03A0441	7.71	7.8	1.	3.1	9.1	20.6	2.5	2.5	2.5	3.7	128.	219	.16	.16	5.	5.
2-Jul-95	M03A0442	7.47	7.7	.5	2.7	6.7	20.2	2.5	2.5	2.5	3.7	180.	213	.16	.16	5.	5.
10-Jul-95	M03A0343	7.76	7.7	5.	2.3	5.2	19.2	2.5	2.5	2.5	3.7	182.	210	.16	.16	5.	5.
17-Jul-95	M03A0344	7.75	7.7	3.	2.	7.6	18.8	2.5	2.5	2.5	3.3	181.	188	.16	.16	5.	5.
24-Jul-95	M03A0345	7.55	7.7	.5	1.9	8.2	16.3	2.5	2.5	5.	3.2	479.	211	.16	.16	5.	5.
31-Jul-95	M03A0346	7.64	7.7	.5	1.9	2.5	11.6	7.8	3.1	5.	3.1	380.	228	.16	.16	5.	5.
7-Aug-95	M03A0347	7.55	7.7	2.	2.1	6.4	10.9	2.5	3.1	5.	3.3	536.	266	.16	.16	5.	5.
14-Aug-95	M03A0348	7.6	7.6	2.	2.2	7.3	6.7	2.5	3.1	5.	3.6	289.	278	.16	.16	5.	5.
21-Aug-95	M03A0349	7.55	7.6	1.	1.7	7.6	6.7	2.5	3.1	5.	3.9	261.	291	.16	.16	5.	5.
28-Aug-95	M03A0350	7.67	7.6	1.	1.7	8.7	6.7	2.5	3.1	5.	4.2	223.	301	.16	.16	5.	5.
4-Sep-95	M03A0351	7.7	7.6	1.	1.8	9.	6.9	2.5	3.1	5.	4.4	317.	316	.16	.16	5.	5.
11-Sep-95	M03A0352	7.54	7.6	1.	1.3	10.4	7.5	2.5	3.1	2.5	4.4	137.	311	.16	.16	5.	5.
18-Sep-95	M03A0353	7.74	7.6	1.	1.1	11.	7.9	2.5	3.1	2.5	4.4	180.	311	.32	.18	5.	5.
25-Sep-95	M03A0354	7.57	7.6	3.	1.4	13.7	8.5	2.5	3.1	2.5	4.2	148.	275	.32	.20	5.	5.
2-Oct-95	M03A0355	8.09	7.7	5.	1.9	9.5	9.3	2.5	2.5	2.5	3.9	109.	244	.32	.21	5.	5.
9-Oct-95	M03A0356	8.26	7.7	3.	2.0	9.3	9.6	.5	2.3	2.5	3.6	170.	204	.32	.23	5.	5.
16-Oct-95	M03A0357	8.06	7.8	1.	1.9	7.6	9.6	2.5	2.3	5.	3.6	332.	209	.32	.25	5.	5.
23-Oct-95	M03A0358	8.23	7.9	1.	1.9	7.8	9.7	.5	2.1	2.5	3.3	79.	188	.32	.27	5.	5.
30-Oct-95	M03A0359	8.23	7.9	3.	2.1	12.6	10.1	.5	1.8	2.5	3.1	167.	182	.32	.28	5.	5.
6-Nov-95	M03A0360	8.06	8.0	1.	2.1	13.	10.5	2.5	1.8	2.5	2.8	143.	163	.32	.30	5.	5.
13-Nov-95	M03A0361	7.95	8.0	1.	2.1	10.9	10.6	2.5	1.8	2.5	2.8	187.	168	.32	.32	5.	5.
20-Nov-95	M03A0362	8.1	8.1	.5	2.1	9.5	10.4	.5	1.6	2.5	2.8	236.	175	.32	.32	5.	5.
27-Nov-95	M03A0363	8.16	8.1	4.	2.2	7.7	9.8	.5	1.4	2.5	2.8	114.	171	.32	.32	5.	5.
4-Dec-95	M03A0364	8.19	8.1	5.	2.2	42.6	13.4	2.5	1.4	2.5	2.8	85.	168	.32	.32	5.	5.
11-Dec-95	M03A0365	8.02	8.1	3.	2.2	43.4	17.2	2.5	1.6	2.5	2.8	158.	167	.32	.32	5.	5.

Chlorinated hydrocarbons value is the sum of detected concentrations of 21 volatile chlorinated hydrocarbons on target compound list.

MONTHLY PROGRESS REPORT  
Groundwater Treatment Plant

French Ltd. Project  
FLTG, Incorporated

TABLE 5-2 (Continued)  
Treated Water Results Summary

Collected	Set No.	As		Ba		Cd		Cr		Cu		Pb		Mn		Hg		Ni		Se		Ag		Zn	
		150 PPB		1000 PPB		50 PPB		500 PPB		15 PPB		66 PPB		300 PPB		1 PPB		148 PPB		20 PPB		5 PPB		162 PPB	
		Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg	Daily	R-Avg
1-May-95	M03A0330	16.8		106.		1.1		.7		.7		.5		6.8		.1		8.5		.8		.5		.2	
4-May-95	M03A0331	21.		149.		1.1		5.9		1.		.5		70.4		.1		7.6		.8		.5		16.2	
8-May-95	M03A0332	16.		126.		.1		1.		1.6		.5		6.		.1		5.		1.3		.2		4.	
11-May-95	M03A0334	17.		158.		.1		3.		.9		.5		22.		.1		6.		1.3		.2		5.	
15-May-95	M03A0333	17.		141.		.1		2.		1.		.5		21.		.1		5.		1.3		.2		4.	
18-May-95	M03A0335	18.		122.		.1		.2		.3		.5		4.		.1		3.		1.3		.2		1.5	
22-May-95	M03A0336	14.		130.		.1		1.		.5		.5		9.		.1		5.		1.3		.2		7.	
29-May-95	M03A0337	16.		176.		.1		2.		.3		.5		27.		.1		1.		2.8		.2		4.	
5-Jun-95	M03A0338	12.	16.4	191.	144	.1	.3	2.	2.	1.	.8	.5	.5	18.	20.5	.1	.1	4.	5.	1.3	1.3	.2	.2	5.	5.2
12-Jun-95	M03A0339	13.	16.	204.	155	.1	.2	1.	2.	1.	.8	.5	.5	2.5	20.	.1	.1	4.5	4.6	1.3	1.4	.2	.2	3.	5.5
19-Jun-95	M03A0340	14.	15.2	213.	162	.1	.1	1.	1.5	.8	.8	.5	.5	6.	12.8	.1	.1	5.	4.3	1.3	1.4	.2	.2	1.5	3.9
26-Jun-95	M03A0341	15.	15.1	155.	166	.1	.1	.7	1.4	.7	.7	4.	.9	2.	12.4	.1	.1	4.	4.2	1.3	1.4	.2	.2	6.	4.1
2-Jul-95	M03A0342	17.	15.1	122.	162	.1	.1	1.5	1.3	.5	.7	1.	.9	10.	11.1	.1	.1	5.	4.1	1.5	1.4	.2	.2	6.	4.2
10-Jul-95	M03A0343	13.	14.7	173.	165	.2	.1	.7	1.1	.9	.7	.5	.9	2.	8.9	.1	.1	5.	4.1	1.2	1.4	.2	.2	5.	4.3
17-Jul-95	M03A0344	13.	14.1	172.	171	.1	.1	.9	1.2	1.	.7	.5	.9	2.5	8.8	.1	.1	4.8	4.3	1.2	1.4	.2	.2	2.9	4.5
24-Jul-95	M03A0345	18.	14.6	175.	176	.1	.1	.7	1.2	.9	.8	.5	.9	1.3	7.9	.1	.1	6.6	4.4	1.2	1.4	.2	.2	5.5	4.3
31-Jul-95	M03A0346	12.	14.1	193.	178	.1	.1	.9	1.	.9	.8	2.8	1.2	5.2	5.5	.1	.1	4.6	4.8	1.1	1.2	.2	.2	3.7	4.3
7-Aug-95	M03A0347	17.	14.7	204.	179.	1.	.2	1.5	1.	.9	.8	.5	1.2	6.6	4.2	.1	.1	5.1	5.	1.2	1.2	.2	.2	7.8	4.6
14-Aug-95	M03A0348	15.	14.9	202.	179	.1	.2	.2	.9	.9	.8	.5	1.2	5.3	4.5	.1	.1	2.8	4.8	1.2	1.2	.2	.2	6.8	5.
21-Aug-95	M03A0349	13.	14.8	190.	176	.1	.2	.2	.8	.9	.8	.5	1.2	1.3	4.	.1	.1	4.	4.7	1.2	1.2	.2	.2	.5	4.9
28-Aug-95	M03A0350	12.	14.4	204.	182	.1	.2	.9	.8	.9	.8	.5	.8	4.4	4.3	.1	.1	3.7	4.6	1.2	1.2	.2	.2	3.3	4.6
4-Sep-95	M03A0351	12.	13.9	209.	191	.1	.2	1.3	.8	2.3	1.	.5	.8	6.4	3.9	.1	.1	5.1	4.6	1.2	1.1	.2	.2	12.	5.3
11-Sep-95	M03A0352	24.	15.1	162.	190	.1	.2	.2	.7	.9	1.	.5	.8	3.7	4.1	.1	.1	3.8	4.5	1.2	1.1	.2	.2	8.8	5.7
18-Sep-95	M03A0353	19.	15.8	165.	189	.1	.2	.6	.7	.9	1.	.5	.8	2.6	4.1	.1	.1	4.	4.4	1.2	1.1	.2	.2	2.9	5.7
25-Sep-95	M03A0354	25.	16.6	145.	186.	1.	.3	1.5	.8	1.7	1.1	.5	.8	5.5	4.6	.1	.1	5.1	4.2	1.2	1.1	.2	.2	11.3	6.3
2-Oct-95	M03A0355	20.	17.4	168.	183	.1	.3	2.1	.9	9.1	2.	.5	.5	7.5	4.8	.1	.1	10.2	4.9	1.2	1.2	.2	.2	4.8	6.5
9-Oct-95	M03A0356	16.	17.3	151.	177	.3	.2	1.2	.9	1.2	2.1	.5	.5	2.5	4.4	.1	.1	3.7	4.7	.9	1.1	.6	.2	1.2	5.7
16-Oct-95	M03A0357	16.	17.4	188.	176	.2	.2	.2	.9	.6	2.	.5	.5	3.	4.1	.1	.1	2.	4.6	2.	1.2	.5	.2	10.	6.1
23-Oct-95	M03A0358	15.	17.7	188.	176	.2	.2	.2	.9	1.2	2.1	.5	.5	5.	4.5	.1	.1	1.	4.3	1.	1.2	.3	.2	3.5	6.4
30-Oct-95	M03A0359	14.6	18.	187.	174	.2	.2	2.	1.	.6	2.	.5	.5	25.	6.8	.1	.1	4.	4.3	.8	1.2	.3	.3	2.5	6.3
6-Nov-95	M03A0360	13.	18.1	204.	173	.2	.2	2.	1.1	.6	1.9	.5	.5	34.	9.9	.1	.1	4.	4.2	.8	1.1	.3	.3	3.	5.3
13-Nov-95	M03A0361	17.	17.3	183.	175	.2	.3	.2	1.1	.6	1.8	.5	.5	6.	10.1	.1	.1	1.	3.9	3.	1.3	.3	.3	7.	5.1
20-Nov-95	M03A0362	13.	16.6	219.	181	.2	.3	.2	1.1	1.3	1.9	.5	.5	18.	11.8	.1	.1	4.	3.9	4.	1.6	.3	.3	5.	5.4
27-Nov-95	M03A0363	11.	15.1	224.	190	.1	.2	1.6	1.1	2.6	2.	.5	.5	24.	13.9	.1	.1	4.	3.8	3.6	1.9	.3	.3	8.6	5.1
4-Dec-95	M03A0364	9.	13.8	299.	205	.2	.2	.2	.9	.6	1.	.5	.5	41.	17.6	.1	.1	.1	2.6	4.	2.2	.3	.3	9.	5.5
11-Dec-95	M03A0365	12.	13.4	235.	214	.2	.1	.2	.8	2.	1.1	.5	.5	12.	18.7	.1	.1	1.	2.3	1.	2.2	.3	.3	4.	5.8

Metals values in PPB.

**ATTACHMENT 5A**

**Sequence for Shut-Down, December 15, 1995**

## Sequence for Shut-Down, December 15, 1995

Personnel: Fred, Edward, Steve, Chris - days

1. Lower T-101 level to 4' -  
Shut down well circuits - Lock and Tag
2. Shut off production well manifold line valve in vaults.  
Remove check valve flapper on manifold.
3. Cut flow line at INT-1 and fuse in existing 1-1/2" process water line.
4. Shut off INT south injection water valve at MCC-3 distribution manifold.
5. Cut flow line and injection water line at INT-226 and 229 in RD-1 property and fuse together.
6. Shut off injection wells south of Gulf Pump Rd. at well head manifold valve.
7. Shut off all oxygen and nutrient feed.
8. Open valve at MCC-3, INT S. injection.
9. Flush until clear at T-101 influent sampling port; conduct TOC on sample.
10. When flushing complete, shut off injection water valve and immediately shut production line "red valve" under MCC-3 from S. Gulf Pump.
11. Lock and Tag "red valve."
12. Return to pumping wells and open manifold valve to bleed line pressure and laterals back into production well casings.
13. Open process water line valve inside west end lagoon.
14. Flush until clear and no TOC detected at T-101 influent.
15. Shut off P-101. Turn eductor OFF.
16. Shut valve on process water inside lagoon and immediately shut #1 inlet valve at T-101
17. Open valves on production well manifold to bleed off pressure and drain laterals.
18. Shut off P-601 injection water.
19. All product and injection lines are now ready for demobilization without containment requirements.

## **Sequence for Shut-Down, December 15, 1995**

**Personnel: Ron and Jesse - nights**

1. Turn on P-101 and pump T-101 down at a regulated flow to 3'.
2. Remove blind flange on drain valve and drain.
3. Open manway.
4. Shut aerator off in Cell D to allow suspended solids to settle.
5. Drain R-1 and R-2 to sump and to Cell D, and remove manways.

## **Sequence for Shut-Down, December 18, 19, 20, 21, 1995**

**Personnel: Fred, Edward, Steve, Chris, Ron, Jesse - days**

1. Tie in Cell D dewater pump into 6" line to clarifier.
2. Dewater Cell D to a manageable level that remainder can be injected into S1-4 through -10 or carbon has been consumed.
3. Mobilize Lefco sludge vacuum truck to remove solids from T-101 and R-1 and R-2 bio reactor and dispose to Cell D.
4. Vacuum sand from sand filter and deposit in Cell D.
5. If carbon has been consumed, notify Norit Americas of removal. Otherwise, keep carbon towers active for TOC and TSS removal for minor wash-down and emergency water removal from Cell D.
6. Construct tie-in from lift station to S1-4 through S1-10 injection wells.

## 6.0 AMBIENT AIR MANAGEMENT

Ambient air quality management continued on an "as-needed" basis to protect the environment, human health, and site workers.

### 6.1 Summary of Activities

Collected and analyzed three ambient air samples; sent December samples to Keystone; the results indicated no excess exposure to organic chemicals.

Sampled the ambient air in all work areas several times per shift and on a random "spot-check" basis; there were no levels of volatile organic compounds which required response action. Sampled ambient air in special work areas where burning and/or welding was planned. Sampled ambient air continuously in areas where exposure could occur and where confined space work occurred.

### 6.2 Problems and Response Action

<u>Problem</u>	<u>Response Action</u>
Calibrate portable vapor meters.	Calibrate before each use.
Sampling "hot" wells.	Require respirator use when sampling "hot" wells.
Ambient air quality in all work areas.	Check all work areas with portable meter several times per day.
Variable results on time-integrated samples.	Analyze duplicate samples at two laboratories; evaluate QAQC in detail; execute response action plan.



**6.3 Problems Resolved**

None.

**6.4 On-going Events/Activities**

Measure ambient air quality in all work areas several times per day.

Conduct periodic time-integrated sampling in all major work areas.

Require respiratory protection when sampling "hot" wells.

Conduct necessary air sampling and analyses to issue and maintain "burn" permits.

Conduct the necessary air sampling to issue and maintain confined space entry permits.

Closely monitor ambient air quality in the vicinity of all dismantling work.

Conduct respirator fit tests on all employees.

Follow-up on AATS response action items.

## 7.0 QUALITY ASSURANCE/QUALITY CONTROL

### 7.1 Summary of Activities

#### 7.1.1 Sampling

One set of personal air monitoring samples were collected in December. These samples were submitted to Chester LabNet-Houston for analysis due to the analytical QC issues experienced at AATS in recent months. See section 7.2.2.1 for an explanation of these QC issues. The following is a summary of current routine and special air matrix code sample specifics:

MATRIX CODE	SAMPLE SPECIFICS
M01D	TF at three locations
	TF = Tenax® front tube

Table 7-1 is a summary of the air, soil and water samples collected during the month of December.

#### 7.1.2 Data Validation Activities Summary

##### 7.1.2.1 Treated Water Samples

Data validation was completed for sample sets M03A0363, M03A0364, and M03A0365. These samples were collected between November 27, 1995 and December 11, 1995. QC failures are summarized in Table 7-2. Final completeness values for treated water discharge samples are summarized in Tables 7-3 through 7-7.

##### 7.1.2.2 Groundwater Samples

Level I data validation has not been completed for the 4th quarter 1995 groundwater monitoring sample sets collected in December. The data for these samples will be available in early February.

##### 7.1.2.3 Other Samples

All other special sample sets were validated manually this period.

## **7.2 Data Validation QC Summary and Discussion**

### **7.2.1 Level I and Level II QC Philosophy**

Precision, accuracy and completeness are the numerical Data Quality Objectives (DQOs) established for the French Project by the Quality Assurance Plan (QAP). The intent of the data validation process is to verify that the documentation and quality control data provided by the laboratory properly substantiate the required data quality. For purposes of data validation procedures, the QAP defines two QC levels: Level I and Level II. Level I data validation is specified for process control and progress monitoring sample data validation and Level II data validation is specified for remediation verification sample results and treated water discharge sample results.

### **7.2.2 QA Issues**

#### **7.2.2.1 Personnel Air Monitoring QC Issues**

Personnel air monitoring samples (TO-1/Tenax) collected since August 1995 and sent to American Analytical and Technical Services(AATS), were partially unusable because of analytical QC failures. These failures include surrogate and internal standard failures, conditioning blank, field blank and trip blank failures, as well as levels of detected compounds well above the historical levels normally found in samples.

Although an internal lab audit was performed and corrective actions were taken to rectify these issues, some of the QC issues are recurring. Therefore, the personnel air monitoring samples collected on December 5th were sent to Chester LabNet-Houston. The QC data on these samples were within acceptable limits. All personnel air samples will be sent to Chester LabNet-Houston until the QC issues at AATS are resolved.

The project and AATS are continuing to investigate the cause of the QC problems. AATS sends four Tenax tubes to the project each week. Samples are collected and sent back to the lab for analysis. The cause of QC problems appear to be a combination of several issues; sample contamination at the lab, sample storage and handling and improper tube mounting on the instrument.

#### **7.2.2.2 Laboratory Audit**

An laboratory audit was performed at the analytical laboratory in Baton Rouge, Louisiana on December 5th and at the Broken Arrow, Oklahoma facility on December 6th, 1995. All air samples are analyzed and reported out of the Oklahoma laboratory. All other analyses are done at the Baton Rouge laboratory. The audit was performed by French Limited Project representatives Ron Jansen and Will Schorp. A full audit report will be submitted in January, 1996.

TABLE 7-1

Samples Collected - December, 1995

Sample No.	Description	Location	Date Samp'd	Lab Rec'd	Data Rec'd	Lab
M01D006301	Personal air monitoring	WTP Operator	12/05	12/06	Y	K
M01D006302	Personal air monitoring	Well Maint.	12/05	12/06	Y	K
M01D006303	Personal air monitoring	TOC Bldg.	12/05	12/06	Y	K
M03A036401	Treated water discharge	CF Out	12/04	12/05	Y	A
M03A036501	Treated water discharge	CF Out	12/11	12/12	Y	A
M04A004001	4th Qtr. '95 GW monitoring	REI-7	12/05	12/06	Y	A
M04A004002	4th Qtr. '95 GW monitoring	REI-11	12/05	12/06	Y	A
M04A004101	4th Qtr. '95 GW monitoring	ERT-028	12/06	12/07	Y	A
M04A004102	4th Qtr. '95 GW monitoring	INT-117	12/06	12/07	Y	A
M04A004103	4th Qtr. '95 GW monitoring	S1-117	12/06	12/07	Y	A
M04A004201	4th Qtr. '95 GW monitoring	INT-118	12/08	12/09	Y	A
M04A004202	4th Qtr. '95 GW monitoring	S1-118	12/08	12/09	Y	A
M04B008101	4th Qtr. '95 GW monitoring	S1-106	12/08	12/09	N	A
M04B008102	4th Qtr. '95 GW monitoring	S1-102	12/08	12/09	N	A
M04B008201	4th Qtr. '95 GW monitoring	S1-109	12/10	12/11	N	A
M04B008202	4th Qtr. '95 GW monitoring	INT-108	12/10	12/11	N	A

Labs: A = American Analytical and Technical Services  
N = North Water District Lab  
K = Chester LabNet-Houston

TABLE 7-1

Samples Collected - December, 1995

Sample No.	Description	Location	Date Samp'd	Lab Rec'd	Data Rec'd	Lab
M04B008203	4th Qtr. '95 GW monitoring	S1-108	12/10	12/11	N	A
M04B008204	4th Qtr. '95 GW monitoring	S1-114	12/10	12/11	N	A
M04B008205	4th Qtr. '95 GW monitoring	S1-111	12/10	12/11	N	A
M04B008206	4th Qtr. '95 GW monitoring	INT-136	12/10	12/11	N	A
M04B008207	4th Qtr. '95 GW monitoring	INT-141	12/10	12/11	N	A
M04B008208	4th Qtr. '95 GW monitoring	INT-144	12/10	12/11	N	A
M04B008301	4th Qtr. '95 GW monitoring	INT-105	12/11	12/12	N	A
M04B008302	4th Qtr. '95 GW monitoring	INT-060	12/11	12/12	N	A
M04B008303	4th Qtr. '95 GW monitoring	INT-104	12/11	12/12	N	A
M04B008304	4th Qtr. '95 GW monitoring	INT-109	12/11	12/12	N	A
M04B008305	4th Qtr. '95 GW monitoring	INT-106	12/11	12/12	N	A
M04B008306	4th Qtr. '95 GW monitoring	INT-103	12/11	12/12	N	A
M04B008401	4th Qtr. '95 GW monitoring	INT-128	12/12	12/13	N	A
M04B008402	4th Qtr. '95 GW monitoring	INT-135	12/12	12/13	N	A
M04B008403	4th Qtr. '95 GW monitoring	INT-139	12/12	12/13	N	A
M04B008404	4th Qtr. '95 GW monitoring	S1-103	12/12	12/13	N	A
M04B008501	4th Qtr. '95 GW monitoring	S1-132	12/13	12/14	N	A

Labs: A = American Analytical and Technical Services  
N = North Water District Lab  
K = Chester LabNet-Houston

TABLE 7-1

Samples Collected - December, 1995

Sample No.	Description	Location	Date Samp'd	Lab Rec'd	Data Rec'd	Lab
M04B008502	4th Qtr. '95 GW monitoring	INT-111	12/13	12/14	N	A
M04B008503	4th Qtr. '95 GW monitoring	S1-110	12/13	12/14	N	A
M04B008504	4th Qtr. '95 GW monitoring	S1-112	12/13	12/14	N	A
M04B008505	4th Qtr. '95 GW monitoring	S1-121	12/13	12/14	N	A
M04B008601	4th Qtr. '95 GW monitoring	S1-133	12/15	12/16	N	A
M04B008602	4th Qtr. '95 GW monitoring	S1-128	12/15	12/16	N	A
M04B008701	4th Qtr. '95 GW monitoring	INT-130	12/18	12/19	N	A
M04B008702	4th Qtr. '95 GW monitoring	S1-123	12/18	12/19	N	A
M04B008801	4th Qtr. '95 GW monitoring	INT-123	12/19	12/20	N	A
M04B008802	4th Qtr. '95 GW monitoring	INT-120	12/19	12/20	N	A
M04B008803	4th Qtr. '95 GW monitoring	REI-10-3	12/19	12/20	N	A
M04D001901	4th Qtr. '95 GW monitoring	ERT-023	12/06	12/07	N	A
M04D001902	4th Qtr. '95 GW monitoring	ERT-025	12/06	12/07	N	A
M04D001903	4th Qtr. '95 GW monitoring	S1-135	12/06	12/07	N	A
M04D002001	4th Qtr. '95 GW monitoring	ERT-024	12/08	12/09	N	A

Labs: A = American Analytical and Technical Services  
N = North Water District Lab  
K = Chester LabNet-Houston

TABLE 7-1

Samples Collected - December, 1995

Sample No.	Description	Location	Date Samp'd	Lab Rec'd	Data Rec'd	Lab
M04E001101	4th Qtr. '95 GW monitoring	S1-101	12/08	12/09	N	A
M04E001201	4th Qtr. '95 GW monitoring	INT-110	12/12	12/13	N	A
M04E001202	4th Qtr. '95 GW monitoring	INT-112	12/12	12/13	N	A
M04E001203	4th Qtr. '95 GW monitoring	S1-104	12/12	12/13	N	A
M04E001204	4th Qtr. '95 GW monitoring	S1-105	12/12	12/13	N	A
M04E001301	4th Qtr. '95 GW monitoring	INT-101	12/15	12/16	N	A
M04E001302	4th Qtr. '95 GW monitoring	P-5	12/15	12/16	N	A
M04F001001	4th Qtr. '95 GW monitoring	S1-127	12/13	12/14	N	A
M04F001101	4th Qtr. '95 GW monitoring	INT-127	12/15	12/16	N	A
M04F001201	4th Qtr. '95 GW monitoring	INT-134	12/18	12/19	N	A
M04F001301	4th Qtr. '95 GW monitoring	REI-10-2	12/19	12/20	N	A
M04G000301	4th Qtr. '95 GW monitoring	W-3	12/15	12/16	N	A
M06C003401	Process water monitoring	T-101 Eff	12/05	12/06	Y	A
M06C003402	Process water monitoring	T-101 Inf	12/05	12/06	Y	A

Labs: A = American Analytical and Technical Services  
N = North Water District Lab  
K = Chester LabNet-Houston

TABLE 7-1

Samples Collected - December, 1995

<u>Sample No.</u>	<u>Description</u>	<u>Location</u>	<u>Date Samp'd</u>	<u>Lab Rec'd</u>	<u>Data Rec'd</u>	<u>Lab</u>
M06C003403	Process water monitoring	R1	12/05	12/06	Y	A
M06C003404	Process water monitoring	R2	12/05	12/06	Y	A
M06C003405	Process water monitoring	Cell D Liqr	12/05	12/06	Y	A

Labs: A = American Analytical and Technical Services  
N = North Water District Lab  
K = Chester LabNet-Houston



**TABLE 7-2**

**Treated Water QC Failure Summary**

Sample Date	Test	QC Failure	Explanation	Corrective Action
11/27/95	PCB	SU Recov.	Surrogate TCX was outside control limits (high) on column 2.	None required - Surrogate must pass only one of two columns.
12/11/95	Ba	ICP Serial Dilution	ICP serial dilution indicated interference.	None required - LCS, duplicate and spike were within control limits.

### **7.2.3 Completeness Summaries**

Tables 7-3 through 7-7 summarize completeness values for VOA, SVA, PCBs, Metals and miscellaneous parameters on treated water samples.

#### **VOA (Table 7-3)**

A total of 3 VOA sample sets have been validated with all categories meeting Project Completeness Goals.

#### **SVA (Table 7-4)**

A total of 3 SVA sample sets have been validated for this time period. All categories meet or exceed Project Completeness Goals with the exception of sample matrix effect. This is due to matrix effect failures in the early stages of the project and the MS/MSD accuracy failures that occurred during September and October 1994.

#### **PCBs (Table 7-5)**

A total of 3 PCB sample sets have been validated for this time period with all samples, meeting data quality objectives. All categories meet or exceed Project Completeness Goals.

#### **Metals (Table 7-6)**

A total of 3 sample sets have been validated for this time period. Project Completeness Goals are met or exceeded in all categories.

#### **Miscellaneous Parameters (Table 7-7)**

A total of 3 sample sets have been validated for this time period. Project completeness goals are met or exceeded in all categories.

TABLE 7-3

Completeness Summary  
M03A Treated Water  
Volatile Organics Analyses

SAMPLE DATE SET NUMBER	M03A0363 thru M03A0365	Project to Date	PROJECT GOAL
Analysis Holding Time	100	100	100
12 Hour Window	100	100	100
SU Check	100	94	90
SU1 (d4-1,2-DCE)	100	97	90
SU2 (d8-Toluene)	100	98	90
SU3 (4-BFB)	100	99	90
IS Check	100	100	90
IS1 (BrClMethane)	100	100	90
IS2 (1,4-DiFIBenzene)	100	100	90
IS3( d5-ClBenzene)	100	100	90
Sample RT/RRT Check	100	*	
Vinyl Chloride			
Accuracy	100	99	90
Precision	100	99	90
Benzene			
Accuracy	100	99	90
Precision	100	100	90
No Group Matrix Effect	100	*	90
No Sample Matrix Effect	100	*	90
Tune Check	100	*	
Overall ICAL Check	100	*	
Overall CCAL Check	100	*	
Overall Lab Blank Check	100	*	

\* - Level II QC checks were performed on 10% of samples prior to 6/14/93.  
PTD completeness values do not apply to these checks.

TABLE 7-4

**Completeness Summary  
M03A Treated Water  
Semivolatile Organic Analyses**

SAMPLE DATE SET NUMBER	M03A0363 thru M03A0365	Project to Date	PROJECT GOAL
Extract Holding Time	100	100	100
Analysis Holding Time	100	100	100
12 Hour Window	100	100	100
<b>SU Check</b>	<b>100</b>	<b>95</b>	<b>90</b>
SU1 (2-FIPhenol)	100	96	90
SU2 (d5-Phenol)	100	94	90
SU3 (d5-Nitrobenz)	100	96	90
SU4(2-FIBiphenyl)	100	98	90
SU5(2,4,6-TBPh)	100	94	90
SU6(d14-Terphen)	100	94	90
<b>IS Check</b>	<b>100</b>	<b>98</b>	<b>90</b>
IS1 (d4-1,4-DiClBenz)	100	100	90
IS2 (d8-Naph)	100	100	90
IS3 ( d10-Acenaph)	100	100	90
IS4 (d10-Phenanth)	100	100	90
IS5 (d12-Chrysene)	100	99	90
IS6 (d12-Perylene)	100	96	90
Sample RT/RRT	100	*	*
Naphthalene			
Accuracy	100	96	90
Precision	100	99	90
No Group Matrix Effect	100	99	90
No Sample Matrix Effect	100	89	90
Tune Check	100	*	*
Overall ICAL Check	100	*	*
Overall CCAL Check	100	*	*
Overall Lab Blank Check	100	*	*

\* - Level II QC checks were performed on 10% of samples prior to 6/14/93.  
PTD completeness values do not apply to these checks.

TABLE 7-5

Completeness Summary  
M03A Treated Water  
PCB Analyses

SAMPLE DATE SET NUMBER	M03A0363 thru M03A0365	Project to Date	PROJECT GOAL
Extract Holding Time	100	100	100
Analysis Holding Time	100	100	100
12 Hour Window	100	100	100
SU Check - Column A	100	99	90
SU1 (DCBP)	100	88	NS
SU2 (TCMX)	100	97	NS
SU Check - Column B	100	98	90
SU1 (DCBP)	100	88	NS
SU2 (TCMX)	67	97	NS
SU Check - Column A or B	100	98	90
Aroclor 1242			
Accuracy	100	99	90
Precision	100	97	90
Overall ICAL Check	100	*	
Overall 1st CCAL Check	100	*	
Overall 2nd CCAL Check	100	*	
Overall Lab Blank Check	100	*	

\* - Level II QC checks were performed on 10% of samples prior to 6/14/93.  
PTD completeness values do not apply to these checks.

TABLE 7-6

Completeness Summary  
M03A Treated Water  
Metals Analyses

SAMPLE DATE SET NUMBER	M03A0363 thru M03A0365	PROJECT GOAL
ANALYTE: BARIUM		
MS Accuracy	100	95
DUP Precision/Difference	100	95
No Matrix Interference*	100	NA
Prep Blank Check	100	100
Lab Control Spike Check	100	100
ANALYTE: CADMIUM		
MS Accuracy	100	95
DUP Precision/Difference	100	95
No Matrix Interference*	100	NA
Prep Blank Check	100	100
Lab Control Spike Check	100	100
ANALYTE: CHROMIUM		
MS Accuracy	100	95
DUP Precision/Difference	100	95
No Matrix Interference*	100	NA
Prep Blank Check	100	100
Lab Control Spike Check	100	100
ANALYTE: COPPER		
MS Accuracy	100	95
DUP Precision/Difference	100	95
No Matrix Interference*	100	NA
Prep Blank Check	100	100
Lab Control Spike Check	100	100
ANALYTE: LEAD		
MS Accuracy	100	95
DUP Precision/Difference	100	95
No Matrix Interference*	100	NA
Prep Blank Check	100	100
Lab Control Spike Check	100	100

W - All samples waived due to low response

\* Matrix interference is indicated by:

Furnace analyses - failure of analytical spike or low MSA coefficient

ICP analyses - failure of serial dilution

TABLE 7-6 (Continued)

Completeness Summary  
M03A Treated Water  
Metals Analyses

SAMPLE DATE SET NUMBER	M03A0363 thru M03A0365	PROJECT GOAL
---------------------------	---------------------------	--------------

ANALYTE: MANGANESE

MS Accuracy	100	95
DUP Precision/Difference	100	95
No Matrix Interference*	100	NA
Prep Blank Check	100	100
Lab Control Spike Check	100	100

ANALYTE: NICKEL

MS Accuracy	100	95
DUP Precision/Difference	100	95
No Matrix Interference*	100	NA
Prep Blank Check	100	100
Lab Control Spike Check	100	100

ANALYTE: SILVER

MS Accuracy	100	95
DUP Precision/Difference	100	95
No Matrix Interference*	100	NA
Prep Blank Check	100	100
Lab Control Spike Check	100	100

ANALYTE: ZINC

MS Accuracy	100	95
DUP Precision/Difference	100	95
No Matrix Interference*	100	NA
Prep Blank Check	100	100
Lab Control Spike Check	100	100

ANALYTE: MERCURY

MS Accuracy	100	95
DUP Precision/Difference	100	95
No Matrix Interference*	100	NA
Prep Blank Check	100	100
Lab Control Spike Check	100	100

W - All samples waived due to low response

\* Matrix interference is indicated by:

Furnace analyses - failure of analytical spike or low MSA coefficient  
ICP analyses - failure of serial dilution

TABLE 7-6 (Continued)

Completeness Summary  
M03A Treated Water  
Metals Analyses

SAMPLE DATE SET NUMBER	M03A0363 thru M03A0365	PROJECT GOAL
---------------------------	---------------------------	--------------

ANALYTE: ARSENIC

MS Accuracy	100	95
DUP Precision/Difference	100	95
No Matrix Interference*	100	NA
Prep Blank Check	100	100
Lab Control Spike Check	100	100

ANALYTE: SELENIUM

MS Accuracy	100	95
DUP Precision/Difference	100	95
No Matrix Interference*	100	NA
Prep Blank Check	100	100
Lab Control Spike Check	100	100

W - All samples waived due to low response

\* Matrix interference is indicated by:  
Furnace analyses - failure of analytical spike or low MSA coefficient  
ICP analyses - failure of serial dilution



TABLE 7-7

Completeness Summary  
M03A Treated Water  
Miscellaneous Parameters Analyses

SAMPLE DATE SET NUMBER	M03A0363 thru M03A0365	Project to Date	PROJECT GOAL
PARAMETER: TOC			
Analysis Hold Time	100	100	100
MS Accuracy	100	100	NA
DUP Precision	100	100	NA
PARAMETER: OILS			
Analysis Hold Time	100	100	100
MS Accuracy	100	100	NA
DUP Precision	100	100	NA
PARAMETER: TSS			
Analysis Hold Time	100	100	100
MS Accuracy	NA	NA	NA
DUP Precision	100	100	NA

## 8.0 SITE MAINTENANCE

### 8.1 Summary of Activities

#### 8.1.1 General Housekeeping

The site safety and housekeeping inspections and responses kept grounds safe and attractive for employees and visitors.

#### 8.1.2 Purchasing

All purchases were covered by written requisitions and purchase orders. Purchase of chemicals is now reduced to groundwater treatment and insitu remediation.

#### 8.1.3 Equipment Maintenance

Routine preventive and production maintenance was performed on all equipment.

### 8.2 Visitors

The following visitors were recorded at the site during December:

December 4: Bill Rames, ARCO  
Greg Garancouslay, ARCO

December 7: Mark Turnley, Core Terra  
Gene Carmen, Inchcape

December 8: John Hill, MDI  
Tom Mallynn, Mechanical Dynamics

December 9: (b) (6) local resident  
Al Goodlow, BSCC

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FLTG, Incorporated

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December 11: Stan Lloyd, Tom-Mac  
Jerry Burton, MA-Gulf  
Cat Brandon, Work Safe, Inc.

December 13: Frank Allen, RCS

December 14: Luis Mendoza, Pletcheis Whsle.  
Danny Hammond, AMS  
Travis Carson, AMS  
Greg Brewer, AATS  
Alan Atkinson

December 15: Greg Dwane, Interstate  
Matt Wilson, CH2M Hill  
Richard Fisher, Phillips  
Earnest Rice, Phillips  
John Vegam, P&H  
Ted Davis, SW Env.

December 18: Richard Burns, GCSWC  
John Holloway, GCSWC

December 19: (b) (6) Bschool

December 20: Charles Wagner, W&W  
(b) (6)  
Danny Hammond, AMS  
Bud Stout, AMS  
Louis Wheat, STS  
Mary Wheat, STS  
(b) (6)

**8.3 Emergency Equipment**

#### **8.3.1 Flood Gate Test**

The flood gate was exercised on December 5, 1995, with no leak detected.

#### **8.3.2 P-8 Auxiliary Pump**

P-8 Auxiliary Pump has been converted to the lagoon ground cover vegetation sprinkler source.

#### **8.3.3 Fire Extinguishers**

All fire extinguishers were inspected and certified.

#### **8.4 Security**

Smith Security provides 24-hour security at the FLTG site, including the south side of Gulf Pump Road; all site areas are checked hourly. No incidents reported by Security in December.

#### **8.5 Operator Training**

All training is documented and records are maintained on site. Employee semi-annual physicals and screening have been completed.

#### **8.6 Data Management**

Data base is fully operational. Data is entered on a daily basis.

#### **8.7 Personnel Monitoring**

Results of personnel monitoring conducted during December are included in Table 8-1.

#### **8.8 OVM System**

Work areas are being monitored daily with Organic Vapor Monitor 580A.

### **8.9 Repository**

Records from the December review are listed in Attachment 8A.

### **8.10 Meteorological Data**

The meteorological station was extensively damaged during an electrical storm and will not be repaired. Temperature and rainfall are measured on conventional gauges at the site.

Rainfall data is listed in Table 8-2.

### **8.11 Site Demobilization**

Site demobilization commenced on December 14, 1995. A list of systems taken out of service are included as Table 8-3.

TABLE 8-1

On-Site Employee Contaminant Limits  
(From OSHA 29 CFR 1910 Subpart Z)

Compound	PEL 8 hour PPM	1 5-Dec-95 WTP Op (E.O.)		2 5-Dec-95 Well Op. (F.L.)		3 5-Dec-95 TOC Bldg.	
		% of PEL	PPM	% of PEL	PPM	% of PEL	PPM
Chloromethane	50	0.000	0.000	0.000	0.000	0.000	0.000
Bromomethane	5	0.000	0.000	0.000	0.000	0.000	0.000
Vinyl chloride	1	0.000	0.000	0.000	0.000	0.000	0.000
Chloroethane	1000	0.000	0.000	0.000	0.000	0.000	0.000
Dichloromethane	50	0.000	0.000	0.000	0.000	0.000	0.000
Acetone	750	0.000	0.000	0.002	0.013	0.001	0.006
Carbon disulfide	10	0.000	0.000	0.000	0.000	0.000	0.000
1,1-Dichloroethene	5	0.000	0.000	0.000	0.000	0.000	0.000
1,1-Dichloroethane	100	0.000	0.000	0.000	0.000	0.000	0.000
trans-1,2-Dichloroethane	200	0.000	0.000	0.000	0.000	0.000	0.000
Chloroform	10	0.020	0.002	0.000	0.000	0.012	0.001
1,2-Dichloroethane	10	0.000	0.000	0.000	0.000	0.000	0.000
2-Butanone	200	0.000	0.000	0.003	0.006	0.001	0.001
1,1,1-Trichloroethane	350	0.000	0.000	0.000	0.000	0.000	0.000
Carbon Tetrachloride	5	0.000	0.000	0.000	0.000	0.000	0.000
Vinyl acetate	10	0.000	0.000	0.000	0.000	0.000	0.000
Bromodichloromethane			0.000		0.000		0.000
1,2-Dichloropropane	75	0.000	0.000	0.000	0.000	0.000	0.000
cis-1,3-Dichloropropen	1	0.000	0.000	0.000	0.000	0.000	0.000
Trichloroethene	50	0.000	0.000	0.000	0.000	0.000	0.000
Dibromochloromethane			0.000		0.000		0.000
1,1,2-Trichloroethane	10	0.000	0.000	0.000	0.000	0.000	0.000
Benzene	1	0.000	0.000	0.000	0.000	0.000	0.000
trans-1,3-Dichloroprop	1	0.000	0.000	0.000	0.000	0.000	0.000
2-Chloroethylvinyl ether			0.000		0.000		0.000
Bromoform	0.5	0.000	0.000	0.000	0.000	0.000	0.000
4-Methyl-2-pentanone	50	0.000	0.000	0.000	0.000	0.000	0.000
2-Hexanone	5	0.000	0.000	0.000	0.000	0.000	0.000
Tetrachloroethene	50	0.000	0.000	0.000	0.000	0.000	0.000
1,1,2,2-Tetrachloroet	1	0.000	0.000	0.000	0.000	0.000	0.000
Toluene	100	0.000	0.000	0.003	0.003	0.001	0.001
Chlorobenzene	10	0.000	0.000	0.000	0.000	0.000	0.000
Ethylbenzene	100	0.000	0.000	0.000	0.000	0.000	0.000
Styrene	50	0.000	0.000	0.000	0.000	0.000	0.000
Xylene (total)	100	0.000	0.000	0.000	0.000	0.000	0.000
Hexane			0.000		0.000		0.000

TABLE 8-2

Rainfall Data for December, 1995

<u>Day</u>	<u>Rain Total (Inches)</u>
1	0.00
2	0.00
3	0.00
4	0.00
5	0.00
6	0.00
7	0.00
8	0.20
9	0.00
10	0.00
11	0.00
12	0.00
13	0.00
14	0.00
15	0.00
16	0.00
17	3.10
18	2.75
19	0.00
20	0.00
21	0.00
22	0.00
23	0.00
24	0.00
25	0.00
26	0.00
27	0.00
28	0.00
29	0.00
30	0.00
31	0.00
Total Rainfall	6.05

TABLE 8-3

Systems and Components Demobilization

	Off line	Deconed/ Cleaned	Demobilized	Surplus	Disposed
Oxygen injection system	X	X			
Nutrient injection system	X	X			
T-101	X				
R-1	X	X		X	
R-2	X	X		X	
AW 401	X		X		X
AW 601	X		X		X
South pond discharge line	X	X	X	X	
Production laterals	X		X		X
Injection laterals	X	X			
AW 101	X		partial		
AW 201	X		partial		
South injection lines	X	X	partial		
North injection lines	X	X	partial		
SW 139	X		X		X
SW 126	X	X		X	
SW 140	X		X		X

The schedule of demobilization of systems are included in daily reports to the agency.



**ATTACHMENT 8A**

**Repository Status Report: December, 1995**

**REPOSITORY STATUS REPORT: December, 1995**

**At the Rice University Library...**

1. Remedial Investigation Report April, 1985
2. Remedial Investigation Report Appendices, Volume II, April, 1985
3. Remedial Investigation Report June, 1986 (Updated from April, 1985)
4. Remedial Investigation Report Appendices, Volume I, February, 1986  
(Revised June, 86)
5. Remedial Investigation Report Appendices, Volume II, February, 1986  
(Revised June, 1986)
6. Remedial Investigation Report Appendices, Volume III, February, 1986
7. 1986 Field Investigation and Supplemental Remedial Investigation Report  
Volume I, December, 1986
8. 1986 Field Investigation and Supplemental Remedial Investigation Report  
French Limited Site Volume II, Appendices December, 1986
9. 1986 Field Investigation Hydrology Report, December 19, 1986
10. Endangerment Assessment Report February, 1987
11. Endangerment Assessment Report April 1987 (Updated from February, 1987)
12. Feasibility Study Report, March 1987
13. In Situ Biodegradation Demonstration Report Volume I Executive Summary,  
October 30, 1987 Revised 11-11-87
14. In Situ Biodegradation Demonstration Supplemental Report French Limited Site  
Volume I, November 30, 1987
15. In Situ Biodegradation Demonstration Report Volume II, October 30, 1987  
(Revised February 1, 1988 at Site only)
16. In Situ Biodegradation Demonstration Supplemental Report French Limited Site  
Volume II, November 30, 1987 + Appendices

17. In Situ Biodegradation Demonstration Report Volume III Appendices, October 30, 1987
18. In Situ Biodegradation Demonstration Report Volume III, Appendices, Supplemental Report, November 30, 1987
19. In Situ Biodegradation Demonstration Report French Limited Site, Volume IV, October 30, 1987 + Appendices
20. In Situ Biodegradation Demonstration Supplemental Report French Limited Site, Volume IV November 30, 1987 + Appendices
21. In Situ Biodegradation Demonstration Report French Limited Site Volume V, October 30, 1987
22. In Situ Biodegradation Demonstration Report French Limited Site Volume V Appendices, November 30, 1987 - Supplemental Report
23. In Situ Biodegradation Demonstration Report French Limited Site Volume VI Appendices, October 30, 1987
24. In Situ Biodegradation Demonstration Report French Limited Site Volume VII Appendices, October 30, 1987
25. In Situ Biodegradation Demonstration Report French Limited Site Volume VIII Appendices, October 30, 1987
26. In Situ Biodegradation Demonstration Report French Limited Site Volume IX Appendices, October 30, 1987
27. In Situ Biodegradation Demonstration Report French Limited Site Volume X Appendices, October 30, 1987
28. In Situ Biodegradation Demonstration Report French Limited Site Volume XI Appendices, October 30, 1987
29. In Situ Biodegradation Demonstration Report French Limited Site Volume XII Appendices, October 30, 1987
30. In Situ Biodegradation Demonstration Report French Limited Site Volume XIII Appendices, October 30, 1987
31. In Situ Biodegradation Demonstration Report French Limited Site Volume XIV Appendices, October 30, 1987

- 32. In Situ Biodegradation Demonstration Report French Limited Site Volume XV Appendices, October 30, 1987
- 33. In Situ Biodegradation Demonstration Report French Limited Site Volume XVI Appendices, October 30, 1987
- 34. In Situ Biodegradation Demonstration Report French Limited Site Volume XVII Appendices, October 30, 1987
- 35. In Situ Biodegradation Demonstration Report French Limited Site Volume XVIII Appendices, October 30, 1987
- 36. Proposed In Situ Biodegradation Demonstration French Limited Site Phase III, April, 1987
- 37. In Situ Bioremediation Demonstration French Limited April, 1987 Monthly Report, Equipment Evaluation Phase IV
- 38. In Situ Bioremediation Demonstration French Limited May, 1987 Monthly Report, Equipment Evaluation Phase IV
- 39. In Situ Bioremediation Demonstration French Limited June, 1987 Monthly Report, Equipment Evaluation Phase IV
- 40. In Situ Bioremediation Demonstration French Limited July, 1987 Monthly Report, Equipment Evaluation Phase IV
- 41. In Situ Bioremediation Demonstration French Limited August, 1987 Monthly Report, Equipment Evaluation Phase IV
- 42. In Situ Bioremediation Demonstration French Limited November, 1987 Monthly Report, Equipment Evaluation Phase IV
- 43. In Situ Bioremediation Demonstration French Limited December, 1987 Monthly Report, Equipment Evaluation Phase IV
- 44. In Situ Bioremediation Demonstration French Limited January, 1988 Monthly Report, Equipment Evaluation Phase IV
- 45. In Situ Bioremediation Demonstration French Limited February, 1988 Monthly Report, Equipment Evaluation Phase IV
- 46. In Situ Bioremediation Demonstration French Limited March, 1988 Monthly Report, Equipment Evaluation Phase IV

47. In Situ Bioremediation Demonstration French Limited April, 1988 Monthly Report, Equipment Evaluation Phase IV
48. In Situ Biodegradation Demonstration French Limited May/June 1988 Monthly Report, Equipment Evaluation Phase IV
49. In Situ Bioremediation Demonstration French Limited July, 1988 Monthly Report, Equipment Evaluation Phase IV
50. In Situ Bioremediation Demonstration French Limited August, 1988 Monthly Report, Equipment Evaluation Phase IV
51. In Situ Bioremediation Demonstration French Limited September, 1988 Monthly Report, Equipment Evaluation Phase IV
52. Supplemental Biodegradation Equipment Evaluation French Limited Site - Phase IV, September 26, 1988
53. In Situ Biodegradation Demonstration Phase III Quality Assurance Project Plan for French Limited Site, March, 1987
54. Addendum to Quality Assurance Project Plan for the French Limited Site In Situ Biodegradation Demonstration Phase III, February 16, 1990
55. Site Safety and Health Plan French Limited Site - Phase III, April 1987 (Revision 2)
56. Remedial Action Plan Volume I - April, 1990
57. Remedial Action Plan Volume I - September, 1990 (Updated from April, 1990)
58. Remedial Action Plan Volume II Quality Assurance April, 1990
59. Remedial Action Plan Volume II Quality Assurance September, 1990 (Updated from April 1990) Revised June 3, 1991
60. Remedial Action Plan Volume II Quality Assurance June, 1990  
Appendix A - Quality Assurance Sampling Procedures and  
Appendix B - Analytical Methods - B.1 - B.53, September 22, 1989  
Revised September 28, 1990
61. Remedial Action Plan Volume III - Health and Safety, July 20, 1990

- 62. Remedial Action Plan Volume IV - Spill and Volatile Organic Release Contingency Plan (April 6, 1990)
- 63. Remedial Action Plan Volume V - Shallow Aquifer and Subsoil Remediation Process Design, May, 1990  
Page v.i.3 Missing
- 64. Remedial Action Plan Volume V - Shallow Aquifer and Subsoil Remediation Process Design, July 20, 1990, (Updated from May, 1990)
- 65. 1988 Equipment Evaluation Phase IV Report French Limited Site: Volume I, February 1, 1990
- 66. 1988 Equipment Evaluation Phase IV Report French Limited Site: Volume II, February 1, 1990
- 67. 1988 Slough Investigation Report French Limited Site, October 1988
- 68. Ambient Air Impact Risk Assessment Report, May 5, 1989
- 69. Workplan for the Shallow Aquifer Pumping Tests for the French Limited Site, July 22, 1988  
Page 80 Missing
- 70. French Limited Site Hurricane Gilbert Preparation Report, October, 1988
- 71. Potable Water Well Installation Report French Limited Site, December 7, 1988
- 72. Bioresidue Fixation Alternatives Evaluation Report French Limited Site March 20, 1989
- 73. Hydrogeologic Characterization Report, March 1989
- 74. Hydrogeologic Characterization Report - Appendices, March 1989
- 75. San Jacinto River May 19, 1989 Flood Event Report, June 1989
- 76. Post San Jacinto River May 1989 Flood Event Soils and Water Analysis Program - Volume I, August 16, 1989
- 77. Post San Jacinto River 1989 Flood Event Soil and Water Analysis Program Volume II Appendix A

78. Post San Jacinto River 1989 Flood Event Soil and Water Analysis Program  
Volume III Appendix A, August 16, 1989
79. Riverdale Lake Area Remediation Program August 15, 1989
80. Flood and Migration Control Wall Design Report, August 16, 1989
81. Flood and Migration Control Wall Design Report Appendix C Access Way Design,  
September, 1989
82. North Pit Remediation Report French Limited Site, November 6, 1989
83. Installation Report for Flood and Migration Control Wall, January 8, 1990
84. Installation Report for Flood and Migration Control Wall  
Appendix A - ENSR Site Logs
85. Installation Report for Flood and Migration Control Wall  
Appendix B - Inspection Reports
86. Installation Report for Flood and Migration Control Wall Appendix C - Pile Driving  
Inspection Report January 8, 1990
87. Flood Wall Gate Test Report French Limited Site, February 1990
88. French Limited Remediation Design Report - Executive Summary  
Bioremediation/Shallow Aquifer, July, 1991
89. Shallow Aquifer and Subsoil Remediation Facilities Design Report Volume I of III -  
Summary Report and Appendices A-H, July 1991
90. Shallow Aquifer and Subsoil Remediation Facilities Design Report Volume II of III  
- Appendices I-M, June 1991
91. Shallow Aquifer and Subsoil Remediation Facilities Design Report Volume III of III  
- Appendices N-P, June 1991
92. Bioremediation Facilities Design Report Volume II of IV Appendices, Reports and  
Calculations (March 20, 1991)
93. Bioremediation Facilities Design Report Volume III of IV  
Appendix E - Design Specifications (March 20, 1991)

94. Bioremediation Facilities Design Report Volume IV of IV - Air Monitoring, March 20, 1991
95. Public Health Assessment for French Limited March 30, 1993 from U.S. Department of Health and Human Services
96. CH2M Hill, Cell E Verification Remediation Report, May 1993, Volume 1, Report, Appendices A-E
97. CH2M Hill, Cell E Verification Remediation Report, May 1993, Volume 2, Appendix F
98. CH2M Hill, Cell E Verification Remediation Report, May 1993, Volume 3, Appendix F continued
99. CH2M Hill, Cell E Verification Remediation Report, May 1993, Volume 4, Appendix G
100. CH2M Hill, Cell E Verification Remediation Report, May 1993, Volume 5, Appendix H
101. CH2M Hill, Cell E Verification Remediation Report, May 1993, Volume 6, Appendix H continued
102. Record of Public Meeting Regarding Remedial Investigation and Feasibility Study (5-21-87)
103. Summary of Remedial Alternative Selection 1988
104. Declaration for the Record of Decision 1988
105. Record of Public Meeting Regarding Remedial Investigation and Feasibility Study (2-11-88) (Updated from June 21, 1987)
106. Consent Decree between the Federal Government and the FLTG
107. French Limited Superfund Site Community Relations Revised Plan August, 1989 - Jacob's Engineering
108. Results of the French Limited Task Group Survey (Goldman and Company) April, 1987
109. Goldman Public Relations Clipping Report



- 110. BioGEE International, Inc., Project Report Biotreatability Study Using Isolated Indigenous Organisms, April, 1994
- 111. Field Evaluation of Biodegradation at the French Limited Site (Phase II) Volume I
- 112. Laboratory Evaluation of Biodegradation at the French Limited Site
- 113. French Limited Site Focused Feasibility Study (May 1987)
- 114. Annual Groundwater Monitoring Report, December 1993, Report and Appendices A-B
- 115. Annual Groundwater Monitoring Report, December 1993, Appendices C-H
- 116. DNAPL Study Remedial Alternative Selection and Feasibility Study Report, November 1994
- 117. Cell E and Cell D/F Remediation Verification Report
- 118. French Limited Wetlands Mitigation, Final Site Restoration Plan
- 119. French Limited Wetlands Mitigation, Site Selection Report
- 120. French Limited Wetlands Mitigation, 404 and 401 Permit Application, U.S. Army Corps of Engineers, Galveston, TX
- 121. Quality Assurance Report, February 15, 1993, Report No. QA93003
- 122. Quality Assurance Report, January 20, 1994, Report No. QA94001
- 123. Environmental Protection Agency, Region VI, Hazardous Waste Management Division, First Five Year Review (Type Ia), CERCLIS TXD-980514814, December 1994
- 124. ARCS, French Limited Site 1993, Annual Groundwater Sampling and Comparison Report, CH2M Hill, January, 1995
- 125. Annual Groundwater Monitoring Report, December, 1994, Report and Appendices A-G
- 126. Superfund Preliminary Site Closeout Report CERCLIS TXD-980514814, September, 1994

- 127. Environmental Protection Agency, Split Sampling and Analysis for Cell D/F, French Limited Site, EPA Contract No: 68-W8-0112, March 1995
- 128. INT-11 DNAPL Area Cutoff Wall Installation and Permeability Certification Report, AHA, August, 1995
- 129. Monthly Progress Report, January 1992
- 130. Monthly Progress Report, January, 1992 Appendices A-C
- 131. Monthly Progress Report, January, 1992 Appendices E, F
- 132. Monthly Progress Report, January, 1992 Appendices G
- 133. Monthly Progress Report, February, 1992
- 134. Monthly Progress Report, February, 1992 Appendices A-B
- 135. Monthly Progress Report, February, 1992 Appendices C 1
- 136. Monthly Progress Report, February, 1992 Appendices C 2
- 137. Monthly Progress Report, February, 1992 Appendices D-E
- 138. Monthly Progress Report, March, 1992
- 139. Monthly Progress Report, March, 1992, Appendix A
- 140. Monthly Progress Report, April, 1992
- 141. Monthly Progress Report, April, 1992, Appendices A-B
- 142. Monthly Progress Report, May, 1992
- 143. Monthly Progress Report, May, 1992, Appendices A-B
- 144. Monthly Progress Report, June, 1992
- 145. Monthly Progress Report, June, 1992, Appendices A-B
- 146. Monthly Progress Report, July 1992
- 147. Monthly Progress Report, July 1992, Appendices A-B

- 148. Monthly Progress Report, July 1992, Appendices B1-B22 Vol. 1 of 3
- 149. Monthly Progress Report, July 1992, Appendices B1-B22 Vol. 2 of 3
- 150. Monthly Progress Report, July 1992, Appendices B1-B22 Vol. 3 of 3
- 151. Monthly Progress Report, August, 1992
- 152. Monthly Progress Report, August, 1992, Appendices A-B
- 153. Monthly Progress Report, September, 1992
- 154. Monthly Progress Report, September, 1992, Appendices A-B
- 155. Monthly Progress Report, October, 1992
- 156. Monthly Progress Report, October, 1992, Appendices A-B
- 157. Monthly Progress Report, November, 1992
- 158. Monthly Progress Report, November, 1992 Appendices A-B
- 159. Monthly Progress Report, December, 1992
- 160. Monthly Progress Report, December, 1992 Appendices A, B
- 161. Monthly Progress Report, January, 1993
- 162. Monthly Progress Report, February, 1993
- 163. Monthly Progress Report, March, 1993
- 164. Monthly Progress Report, April, 1993
- 165. Monthly Progress Report, May, 1993
- 166. Monthly Progress Report, June, 1993
- 167. Monthly Progress Report, July, 1993
- 168. Monthly Progress Report, August, 1993
- 169. Monthly Progress Report, September, 1993

- 170. Monthly Progress Report, October, 1993
- 171. Monthly Progress Report, November, 1993
- 172. Monthly Progress Report, December, 1993
- 173. Monthly Progress Report, January, 1994
- 174. Monthly Progress Report, February, 1994
- 175. Monthly Progress Report, March, 1994
- 176. Monthly Progress Report, April, 1994
- 177. Monthly Progress Report, May, 1994
- 178. Monthly Progress Report, June, 1994
- 179. Monthly Progress Report, July, 1994
- 180. Monthly Progress Report, August, 1994
- 181. Monthly Progress Report, September, 1994
- 182. Monthly Progress Report, October, 1994
- 183. Monthly Progress Report, November, 1994
- 184. Monthly Progress Report, December, 1994
- 185. Monthly Progress Report, January, 1995
- 186. Monthly Progress Report, February, 1995
- 187. Monthly Progress Report, March, 1995
- 188. Monthly Progress Report, April, 1995
- 189. Monthly Progress Report, May, 1995
- 190. Monthly Progress Report, June, 1995
- 191. Monthly Progress Report, July, 1995

- 192. Monthly Progress Report, August, 1995
- 193. Monthly Progress Report, September, 1995
- 194. Monthly Progress Report, October, 1995
- 195. Monthly Progress Report, November, 1995

**At the Crosby library...**

- 1. Remedial Investigation Report - June, 1986
- 2. Remedial Investigation Appendices Volume I June, 1986 Revised from Feb. 1986
- 3. Remedial Investigation Appendices Volume II June, 1986 Revised from Feb. 1986
- 4. Remedial Investigation Appendices Volume III February, 1986
  - Pages 1 and 2 of 10 Res. Engr Tab Missing
  - Analytical Report Worksheet 7-8-9-10 Missing
  - Pages 1 and 2 of 6 Missing
  - Tab 9 H 1-8 Missing, H 11-19 Missing, Page 1 of 10 Missing
  - Page 3 Worksheet Missing
  - Tab 10 H 1-3 Missing, Page 3-6 of 6 Missing, Page 1-6 Missing
  - Tab 12 Page 2-10 of 10 Missing
- 5. Field Investigation and Supplemental Remedial Investigation Report, Volume I, December, 1986
- 6. Field Investigation and Supplemental Remedial Investigation Report, Volume II, Appendices, December 1986
- 7. Field Investigation Hydrology Report, December 19, 1986
- 8. Feasibility Study Report, March 1987
- 9. Feasibility Study Report, March 1987
- 10. French Limited Site Focused Feasibility Study, May 1987
- 11. Endangerment Assessment Report February 1987
- 12. Endangerment Assessment Report April 1987

13. Endangerment Assessment Report April 1987
14. In Situ Biodegradation Demonstration Report Volume I Executive Summary  
October, 1987 (Revised 12-15-87)
15. In Situ Biodegradation Demonstration Report Volume II October 30, 1987
16. In Situ Biodegradation Demonstration Supplemental Report French Limited Site  
Volume I, November 30, 1987  
Missing Supplements to 5-6 and 7 to 10
17. In Situ Biodegradation Demonstration Supplemental Report French Limited Site  
Volume II, November 30, 1987 + Appendices
18. In Situ Biodegradation Demonstration Supplemental Report French Limited Site  
Volume III, November 30, 1987 + Appendices
19. In Situ Biodegradation Demonstration Supplemental Report French Limited Site  
Volume IV, November 30, 1987 -Appendices
20. In Situ Biodegradation Demonstration Supplemental Report French Limited Site  
Volume V - Appendices, November 30, 1987
21. Results of the French Limited Task Group Survey (Goldman and Company)  
April 1987
22. Goldman Public Relations Clipping Report
23. Consent Decree between the Federal Government and the FLTG
24. Consent Decree between the Federal Government and the FLTG
25. Laboratory Evaluation of Biodegradation at the French Limited Site, December  
1986.
26. Field Evaluation of Biodegradation at the French Limited Site (Phase II) Volume I,  
March, 1987
27. Bioremediation Facilities Design Report Volume II of IV Appendices, Reports and  
Calculations March 20, 1991
28. Bioremediation Facilities Design Report Volume III of IV Appendix E - Design  
Specifications March 20, 1991

29. Bioremediation Facilities Design Report Volume IV of IV Air Monitoring, March 20, 1991
30. Remedial Action Plan Volume I, September 28, 1990
31. Remedial Action Plan Volume II - Quality Assurance, Revised June 3, 1991
32. Remedial Action Plan Volume II - Appendix A - Quality Assurance Sampling Procedures and Appendix B - Analytical Methods - B.1 - B.53, September 28, 1990
33. Remedial Action Plan Volume III - Health and Safety, July 20, 1990
34. Remedial Action Plan Volume V - Shallow Aquifer and Subsoil Remediation Process Design, July 20, 1990
35. Remedial Action Plan Volume V - Shallow Aquifer and Subsoil Remediation Process Design, July 20, 1990
36. Hydrogeologic Characterization Report, March 1989
37. Hydrogeologic Characterization Report Appendices, March 1989
38. Supplemental Biodegradation Equipment Evaluation French Limited Site - Phase IV, September 26, 1988
39. Equipment Evaluation Phase IV Report French Limited Site: Volume I, February 1, 1990
40. Equipment Evaluation Phase IV Report French Limited Site: Volume II, February 1, 1990
41. Site Safety and Health Plan French Limited Site - Phase III, April 1987 (Revision 2)
42. San Jacinto River May 19, 1989 Flood Event Report, June 1989
43. Post San Jacinto River May 1989 Flood Event Soils and Water Analysis Program Volume I, August 16, 1989
44. Post San Jacinto River 1989 Flood Event Soil and Water Analysis Program Volume II, Appendix A

45. Post San Jacinto River 1989 Flood Event Soil and Water Analysis Program  
Volume III, Appendix A, August 16, 1989
46. Slough Investigation Report French Limited Site, October 1988
47. Flood and Migration Control Wall Design Report, August 16, 1989
48. Flood and Migration Control Wall Design Report (Flood is spelled incorrectly on  
Volume Cover) + Appendix C - Access way Design September 1989
49. Installation Report for Flood and Migration Control Wall January 8, 1990
50. Installation Report for Flood and Migration Control Wall  
Appendix A - ENSR Site Logs
51. Installation Report for Flood and Migration Control Wall  
Appendix B - Inspection Reports
52. Installation Report for Flood and Migration Control Wall  
Appendix C - Pile Driving Inspection Report January 8, 1990
53. Flood Wall Gate Test Report French Limited Site, February 1990
54. North Pit Remediation Report French Limited Site, November 6, 1989
55. Workplan for the Shallow Aquifer Pumping Tests for the French Limited Site, July  
22, 1988  
(Additional Title - Pumping Test Program for Shallow Alluvial Aquifer Zone)
56. French Limited Site Hurricane Gilbert Preparation Report October, 1988
57. Riverdale Lake Area Remediation Program, August 15, 1989
58. Addendum to Quality Assurance Project Plan for the French Limited Site In Situ  
Biodegradation Demonstration Phase III, February 16, 1990
59. Potable Water Well Installation Report French Limited Site, December 7, 1988
60. Bioresidue Fixation Alternatives Evaluation Report French Limited Site  
March 20, 1989
61. Ambient Air Impact Risk Assessment Report, May 5, 1989



- 62. Shallow Aquifer and Subsoil Remediation Facilities Design Report Volume I of III - Summary Report and Appendices A-H, July 1991
- 63. Shallow Aquifer and Subsoil Remediation Facilities Design Report Volume II of III - Appendices I-M, June 1991
- 64. Shallow Aquifer and Subsoil Remediation Facilities Design Report Volume III of III - Appendices N-P, June 1991
- 65. French Ltd. Remediation Design Report Executive Summary  
Bioremediation Shallow Aquifer July 1991
- 66. BioGEE International, Inc., Project Report Biotreatability Study Using Isolated Indigenous Organisms, April 15, 1994
- 67. Black EPA Binder
- 68. CH2M Hill, Cell E Verification Remediation Report, May 1993, Volume 1, Report, Appendices A-E
- 69. CH2M Hill, Cell E Verification Remediation Report, May 1993, Volume 2, Appendix F
- 70. CH2M Hill, Cell E Verification Remediation Report, May 1993, Volume 3 Appendix F continued
- 71. CH2M Hill, Cell E Verification Remediation Report, May 1993, Volume 4, Appendix G
- 72. CH2M Hill, Cell E Verification Remediation Report, May 1993, Volume 5, Appendix H
- 73. CH2M Hill, Cell E Verification Remediation Report, May 1993, Volume 6, Appendix H continued
- 74. Equipment Evaluation Phase IV Report November, 1987 Monthly Report
- 75. Equipment Evaluation Phase IV Report December, 1987 Monthly Report
- 76. Microfiche Field Reports 1988 -small box
- 77. Annual Groundwater Monitoring Report, December 1993, Report and Appendices A-B

78. Annual Groundwater Monitoring Report, December 1993, Appendices C-H
79. DNAPL Study Remedial Alternative Selection and Feasibility Study Report, November 1994
80. Cell E and Cell D/F Remediation Verification Report
81. French Limited Wetlands Mitigation, Final Site Restoration Plan
82. French Limited Wetlands Mitigation, Site Selection Report
83. French Limited Wetlands Mitigation, 404 and 401 Permit Application, U.S. Army Corps of Engineers, Galveston, TX.
84. Quality Assurance Report, February 15, 1993, Report No. QA93003
85. Quality Assurance Report, January 20, 1994, Report No. QA94001
86. Environmental Protection Agency, Region VI, Hazardous Waste Management Division, First Five Year Review (Type Ia), CERCLIS TXD-980514814, December 1994
87. ARCS, French Limited Site 1993, Annual Groundwater Sampling and Comparison Report, CH2M Hill, January, 1995
88. Annual Groundwater Monitoring Report, December, 1994, Report and Appendices A-G
89. Superfund Preliminary Site Closeout Report CERCLIS TXD-980514814, September, 1994 (2 copies)
90. Environmental Protection Agency, Split Sampling and Analysis for Cell D/F, French Limited Site, EPA Contract No: 68-W8-0112, March 1995
91. INT-11 DNAPL Area Cutoff Wall Installation and Permeability Certification Report, AHA, August, 1995
92. Health Consultation, French Ltd., Harris County, TX, CERCLIS No. TXD-980514814, TDH, September 6, 1994
93. Monthly Progress Report, January, 1992
94. Monthly Progress Report, January, 1992, Appendices A-C

- 95. Monthly Progress Report, January, 1992, Appendices E-F
- 96. Monthly Progress Report, January, 1992, Appendix G
- 97. Monthly Progress Report, February, 1992
- 98. Monthly Progress Report, February, 1992, Appendices A-B
- 99. Monthly Progress Report, February, 1992, Appendices C 1
- 100. Monthly Progress Report, February, 1992 Appendices C 2
- 101. Monthly Progress Report, February, 1992 , Appendices D-E
- 102. Monthly Progress Report, March, 1992
- 103. Monthly Progress Report, March, 1992, Appendix A
- 104. Monthly Progress Report, April, 1992
- 105. Monthly Progress Report, April, 1992, Appendices A-B
- 106. Monthly Progress Report, May, 1992
- 107. Monthly Progress Report, May, 1992, Appendices A-B
- 108. Monthly Progress Report, June, 1992
- 109. Monthly Progress Report, June, 1992, Appendices A-B
- 110. Monthly Progress Report, July, 1992
- 111. Monthly Progress Report, July, 1992, Appendices A-B
- 112. Monthly Progress Report, July, 1992, Appendices B1-B22 Vol. 1 of 3
- 113. Monthly Progress Report, July, 1992, Appendices B1-B22 Vol. 2 of 3
- 114. Monthly Progress Report, July, 1992, Appendices B1-B22 Vol. 3 of 3
- 115. Monthly Progress Report, August, 1992
- 116. Monthly Progress Report, August, 1992, Appendices A-B

- 117. Monthly Progress Report, September, 1992
- 118. Monthly Progress Report, September, 1992, Appendices A-B
- 119. Monthly Progress Report, October, 1992
- 120. Monthly Progress Report, October, 1992, Appendices A-B
- 121. Monthly Progress Report, November, 1992
- 122. Monthly Progress Report, November, 1992, Appendices A-B
- 123. Monthly Progress Report, December, 1992
- 124. Monthly Progress Report, December, 1992, Appendices A-B
- 125. Monthly Progress Report, January, 1993
- 126. Monthly Progress Report, February, 1993
- 127. Monthly Progress Report, March, 1993
- 128. Monthly Progress Report, April, 1993
- 129. Monthly Progress Report, May, 1993
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- 131. Monthly Progress Report, July, 1993
- 132. Monthly Progress Report, August, 1993
- 133. Monthly Progress Report, September, 1993
- 134. Monthly Progress Report, October, 1993
- 135. Monthly Progress Report, November, 1993
- 136. Monthly Progress Report, December, 1993
- 137. Monthly Progress Report, January, 1994
- 138. Monthly Progress Report, February, 1994

- 139. Monthly Progress Report, March, 1994
- 140. Monthly Progress Report, April, 1994
- 141. Monthly Progress Report, May, 1994
- 142. Monthly Progress Report, June, 1994
- 143. Monthly Progress Report, July, 1994
- 144. Monthly Progress Report, August, 1994
- 145. Monthly Progress Report, September, 1994
- 146. Monthly Progress Report, October, 1994
- 147. Monthly Progress Report, November, 1994
- 148. Monthly Progress Report, December, 1994
- 149. Monthly Progress Report, January, 1995
- 150. Monthly Progress Report, February, 1995
- 151. Monthly Progress Report, March, 1995
- 152. Monthly Progress Report, April, 1995
- 153. Monthly Progress Report, May, 1995
- 154. Monthly Progress Report, June, 1995
- 155. Monthly Progress Report, July, 1995
- 156. Monthly Progress Report, August, 1995
- 157. Monthly Progress Report, September, 1995
- 158. Monthly Progress Report, October, 1995
- 159. Monthly Progress Report, November, 1995

**12 Large Brown Folders:**

1. Administrative Record Index - 2 folders  
Administrative Record 09-26-79 thru 05-29-83  
Administrative Record 06-03-83 thru 11-28-83  
Administrative Record 02-28-84  
Administrative Record 03-09-84  
Technical Comments on Remediation Investigation Report 2-84  
Supplemental Investigation - Resource Engr. 1-84  
Administrative Record 3-9-84
2. Administrative Record 08-31-84  
Administrative Record 10-29-84 thru 01-22-85  
French Ltd. Technical and Regulatory Concepts for In-Place Closure, 09-84  
Supplementary Investigation, May 1984  
French Ltd. Field Activities Work Plan, February 1985  
Supplementary Investigation Attachments, May 1985
3. Administrative Record 02-04-85  
Remedial Investigation, Vol. I Report, April 1985  
Remedial Investigation, Vol. II Appendices, April 1985
4. Administrative Record 04-08-85 thru 11-26-85  
Administrative Record 02-14-86 thru 04-04-86  
Technical Report for Resource Engineering, 12-03-85  
Appendix QA Program for French Ltd., 12-18-85  
1985 Field Investigation Report Appendices, January, 1986  
1985 Field Investigation Report , January, 1986
5. Administrative Record 04-01-86  
Remedial Investigation Report Appendices, Vol. II, April, 1986
6. Administrative Record 4-1-86
7. Administrative Record 05-08-86 thru 05-12-86  
Administrative Record 06-01-86  
Administrative Record 01-05-87  
Remedial Investigation Report, June 1986  
Laboratory Evaluation of Biodegradation, 12-86  
1986 Field Investigation Hydrology Report, 12-86  
Endangerment Assessment Report, 2-87
8. Feasibility Study, March 1987
9. Administrative Report 03-11-87 thru 03-25-87  
Administrative Report 4-1-87  
Administrative Report 4-7-87

- In Situ Biodegradation Demonstration Phase III QA Project Plan 3-87  
Endangerment Assessment Report, 4-87  
Proposed In Situ Biodegradation Demonstration French Limited Site Phase III 4-87
10. Administrative Report 4-15-87 thru 5-1-87  
Administrative Report 5-21-87 thru 7-2-87  
French Limited Focused Feasibility Study, ERT 5-87  
Revised Field Evaluation of Biodegradation at French Site Phase II Vol. I  
-Revised 7-10-87
11. Administrative Report 7-20-87 - 11-23-87  
Administrative Report Undated Documents 000122-000134  
In Situ Biodegradation Demonstration Report Vol. I Executive Summary 10-87  
French Limited Site Work Plan Vol. I Project Activities and Sample Plan
12. Texas Air Control Board Regulations I thru IX  
Standard Exemption List  
Application for Permit

During the month of **December**, the status of both libraries have been reviewed and the above information found to be accurate.

## 9.0 WETLANDS RESTORATION

### 9.1 Summary of Activities and Progress

Inspected the site twice per week to evaluate status and to determine maintenance requirements.

Continued work on a video of the project.

Continued the 5-year maintenance program.

Took aerial photos of the site to evaluate vegetation status.

### 9.2 Problem Areas and Solutions

None.

### 9.3 Problems Resolved

None.

### 9.4 Deliverables Submitted

November, 1995, Monthly Report.

### 9.5 Upcoming Events and Activities

Daily safety program when work on site.

Support Baytown response plan for the remaining affected soil.

Regular site inspections.

Site maintenance as required.



MONTHLY PROGRESS REPORT  
Wetlands Restoration

French Ltd. Project  
FLTG, Incorporated

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Issue quarterly status report.

Complete project video.